



National Weather Service

Storm Data and Unusual Weather Phenomena



January 2002

| Location | Date | Time | Path | Path | Number of | | Estimated | | Character of Storm |
|----------|------|--------------------|-------------------|------------------|-----------|---------|-----------|-------|--------------------|
| | | Local/ Standard | Length (Miles) | Width (Yards) | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

WIZ070-072

Walworth - Kenosha

| | | | | |
|-----------|----------------|----------|----------|-------------------|
| 31 | 0400CST | 0 | 0 | Heavy Snow |
| | 0800CST | | | |

Southeast Wisconsin experienced its first heavy snow event of the 2001-02 winter season when 6 to 9 inches of heavy, wet snow fell over parts of Walworth and Kenosha counties. The southeast half of Walworth County, and most of Kenosha County received more than 6 inches. Wheatland and Silver Lake, both in western Kenosha County, picked up 9 and 8 inches, respectively. Genoa City and Lake Geneva, both in southeastern Walworth County, measured 8.6 and 7.5 inches, respectively. Based on newspaper accounts, slippery roads resulted in dozens of vehicle accidents. Although accumulating snow began about 2100CST on January 30th, storm totals didn't exceed 6 inches until about 0400CST on the 31st. Elsewhere across southcentral and southeast Wisconsin more than 4 inches fell southeast of a line from Brodhead (Green Co.) to Port Washington (Ozaukee Co.). Small areas of Milwaukee, Racine, and Rock counties received more than 6 inches of snow, but these counties were not officially included in this heavy snow event since the areas affected were small. Up to 8 inches fell in the city of Racine (Racine Co.) and near the Illinois border in southeast Rock County. Milwaukee's Mitchell Field reported a storm total of 7.9 inches, but this was the only location in Milwaukee County that had snow amounts in excess of 6 inches. However, the 6.7 inches of snow that fell at Mitchell Field on January 31st was a new daily record, breaking the old record of 6.5 inches set back in 1908. Synoptically, a surface low pressure trough extended from Oklahoma to the Ohio River Valley. A weak surface low pressure moved northeast along the trough while warm-air advection initiated the snowfall.



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February 2002

| Location | Date | Time | Path | Path | Number of | | Estimated | | Character of Storm |
|----------|------|--------------------|-------------------|------------------|-----------|---------|-----------|-------|--------------------|
| | | Local/ Standard | Length (Miles) | Width (Yards) | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

WIZ046>047-051>052-
056>060-062>072

Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane -
Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha

| | | | | |
|----|--------------------|---|---|-----|
| 20 | 0200CST 1000CST | 0 | 0 | Fog |
|----|--------------------|---|---|-----|

Dense fog developed overnight across south-central and southeast Wisconsin due to light rain and persistent, on-shore southeast to northeast winds. Visibilities were reduced to 1/8 to 1/4 mile, especially in river valleys and other low spots. This led to several vehicle accidents and flight delays or cancellations at airports



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March 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

WIZ046>047-051>052-056>060-062>072 **Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha**

02 0000CST 2200CST 0 0 Heavy Snow

Heavy snow, ranging from 7 to 11 inches in depth, fell over south-central and southeast Wisconsin. Most of the inclement weather occurred on March 2nd, although preceding light snow started at about 1900CST on March 1st, and some residual blowing and drifting snow persisted until about 0600CST on March 3rd. This was the only widespread heavy snow event of the 2001-02 winter season to affect southern Wisconsin. Accumulating snows during this event came in two waves...one during the overnight hours ending about 0700CST on March 2nd, and the other one lasting from about 1200CST to 2100CST on March 2nd. In between the two waves, some mixed precipitation, consisting of snow, sleet, and freezing rain, was observed southeast of a line from Janesville (Rock Co.) to Port Washington (Ozaukee Co.). In general, surface winds initially were out of the northeast at 10 to 20 mph, but backed to the northwest at 15 to 25 mph (occasional gusts to 30 to 35 mph) during the last half of this heavy snow event. Surface temperatures were generally in the 20s, but readings briefly rose to the lower 30s over the counties of Milwaukee, Racine, Kenosha, and Walworth in between the snow waves. Near-blizzard conditions were noted west of Madison in the counties of Sauk, Iowa, and Lafayette during the 2nd half of the heavy snow event due to the winds and falling snow, with visibilities occasionally reduced to 1/4 to 1/2 mile. Numerous indoor and outdoor activities across south-central and southeast were cancelled, and many airplane flights were delayed or cancelled. Based on newspaper accounts, at least 300 to 400 vehicle accidents occurred. Towing service owners were quoted as saying "People are running into poles, curbs, and each other." At least a dozen people needed hospital treatment due to injuries sustained in vehicle accidents (indirectly-related to this heavy snow event)

Specifically, Milwaukee Mitchell Field (Milwaukee Co.) measured 11.0 of snow for the entire event, with 9.4 inches falling on March 2nd (a new daily record snowfall amount for March 2nd). Elsewhere, notable amounts include: Elkhorn (Walworth Co.) - 11 inches, Fond du Lac (Fond du Lac Co.) - 10.5 inches, Sauk City (Sauk Co.) - 10 inches, Richfield (Washington Co.) - 9.6 inches, Sun Prairie (Dane Co.) - 9.5 inches, Argyle (Lafayette Co.) - 9.5 inches, Eagle (Waukesha Co.) - 9.2 inches, and 9 inches at Milton (Rock Co.), Palmyra (Jefferson Co.), Twin Lakes (Kenosha Co.), Westfield (Marquette Co.), Juneau (Dodge Co.), and Fredonia (Ozaukee Co.). Snowdrifts were reported to be 2 to 3 feet deep, especially in exposed, rural areas. Synoptically, the responsible low pressure moved from central Oklahoma to extreme southeast Wisconsin and then on to lower Michigan. In the wake of this heavy snow event, clear skies and light winds combined with the fresh snow cover to allow temperatures to drop below zero over much of south-central and southeast Wisconsin (for the 1st time since February 2001) during the overnight hours of March 3rd into March 4, 2002.

Washington County

| | | | | | | |
|---|-----------|----------------|----------|----------|-----------|------------------|
| Jackson | 08 | 1751CST | 0 | 0 | 5K | Lightning |
| Lightning hit a home's satellite dish and sent a current into the home, resulting in damage to a computer system and all major appliances and household wiring. | | | | | | |

Rock County

| | | | | | | |
|-------------------|-----------|----------------|----------|----------|------------|------------------|
| Janesville | 09 | 0122CST | 0 | 0 | 30K | Lightning |
|-------------------|-----------|----------------|----------|----------|------------|------------------|

Rock County

| | | | | | | |
|----------------------------|-----------|----------------|----------|----------|--|--------------------------------|
| 3.5 E Emerald Grove | 09 | 0125CST | 0 | 0 | | Thunderstorm Wind (E52) |
|----------------------------|-----------|----------------|----------|----------|--|--------------------------------|

Walworth County

| | | | | | | |
|-----------------------|-----------|----------------|----------|----------|--|-------------------|
| 2 NE La Grange | 09 | 0138CST | 0 | 0 | | Hail(0.75) |
|-----------------------|-----------|----------------|----------|----------|--|-------------------|

Washington County

| | | | | | | |
|--------------------|-----------|----------------|----------|----------|------------|------------------|
| 2 N Colgate | 09 | 0200CST | 0 | 0 | 25K | Lightning |
|--------------------|-----------|----------------|----------|----------|------------|------------------|



| March 2002 | | | | | | | | | |
|------------|------|--------------------|-------------------|------------------|-----------|---------|-----------|-------|--------------------|
| Location | Date | Time | Path | Path | Number of | | Estimated | | Character of Storm |
| | | Local/ Standard | Length (Miles) | Width (Yards) | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

Scattered severe thunderstorms affected parts of Rock and Walworth counties. The fast-moving storms generated damaging winds estimated to at least 52 knots (60 mph) in eastern Rock County, resulting in toppled large trees. Large hail was noted in northern Walworth County. A lightning strike ignited a fire that severely burned a home's garage in Janesville. North of Colgate (Washington Co.) a lightning strike caused extensive damage to appliances and electrical service in at least 3 homes.

**WIZ051>052-065-
069>070-072**

Fond Du Lac - Sheboygan - Waukesha - Rock - Walworth - Kenosha

| | | | | | |
|----|--------------------|---|---|-----|-----------|
| 09 | 1000CST 2359CST | 0 | 0 | 73K | High Wind |
|----|--------------------|---|---|-----|-----------|

High winds raked part of south-central and southeast Wisconsin for about 14 hours with gusts of 50 to 56 knots (58 to 64 mph). The area from the Town of Taycheedah (Fond du Lac Co.) to Greenbush (Sheboygan Co.) reported toppled trees and power lines. In the city of Janesville (Rock Co.) a powerful gust toppled a restaurant sign onto power lines, resulting in a loss of electricity for 1 hour. In the city of Delevan, the powerful winds pushed a tree onto power pole and nearby garage. In the city of Kenosha, the high winds knocked bricks from a church bell tower, causing police to close off the local area. Measured peak wind gusts from trained spotters were 56 knots (64 mph) three miles south of the city of Waukesha (Waukesha Co.), and 50 knots (58 mph) in the Town of Taycheedah. Other notable peak gusts were: 49 knots (56 mph) at the Sheboygan Airport (Sheboygan Co.) and Kenosha Airport (Kenosha Co.), 48 knots (55 mph) in Lake Geneva (Walworth Co.), 47 knots (54 mph) at a location 2 miles southwest of the city of Fond du Lac (Fond du Lac Co.), and 46 knots (53 mph) at the Brodhead Airport (Green Co.). Most other locations in south-central and southeast Wisconsin experienced peak gusts in the 35 to 45 knot range (40 to 52 mph). Interestingly, the peak wind gusts (generally from the west) tended to occur with some of the more intense scattered snow showers, indicating that atmospheric mixing of higher-momentum air down to the surface was taking place in/near the snow showers. Temperatures were in the 25 to 30 degree range during the afternoon hours of the 9th. There were scattered reports of some trees pushed over from several of the counties surrounding the named counties in this high wind event. Altogether, about 2500 customers in south-central and southeast Wisconsin lost electrical power due to toppled power lines. Synoptically, a low pressure over eastern Colorado on March 8th moved to southeastern Kansas and deepened to 992 millibars (29.29 inches), and then tracked to Lake Superior by mid-day on the 9th with a central pressure of 988 millibars (29.18 inches). High winds were observed over northern Iowa and much of Minnesota as well.



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April 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

LAKE MICHIGAN

| | | | | | | | | | |
|------------------|-----------|--------------------|------------|----------|-----|----|--|--|------------------------|
| LMZ645 | North Pt | Lt To | Wind | Pt | Wi | | | | |
| Milwaukee Harbor | 18 | 1615CST | | | 0 | 0 | | | Marine Tstm Wind (M42) |
| LMZ643 | Sheboygan | To Pt | Washington | Wi | | | | | |
| .5 E Sheboygan | 18 | 1622CST | | | 0 | 0 | | | Marine Tstm Wind (M35) |
| LMZ645 | North Pt | Lt To | Wind | Pt | Wi | | | | |
| Milwaukee Harbor | 18 | 1700CST | | | 0 | 0 | | | Marine Tstm Wind (M44) |
| LMZ643 | Sheboygan | To Pt | Washington | Wi | | | | | |
| .5 E Sheboygan | 18 | 1700CST | | | 0 | 0 | | | Marine Tstm Wind (M35) |
| LMZ645 | North Pt | Lt To | Wind | Pt | Wi | | | | |
| Milwaukee Harbor | 18 | 1735CST 1835CST | | | 0 | 0 | | | Marine Tstm Wind (M45) |
| LMZ643 | Sheboygan | To Pt | Washington | Wi | | | | | |
| .5 E Sheboygan | 18 | 1800CST | | | 0 | 0 | | | Marine Tstm Wind (M35) |
| LMZ645 | North Pt | Lt To | Wind | Pt | Wi | | | | |
| Milwaukee Harbor | 18 | 1925CST | | | 0 | 0 | | | Marine Tstm Wind (M35) |
| LMZ646 | Wind Pt | Lt Wi | To | Winthrop | Hbr | II | | | |
| 1.5 E Kenosha | 18 | 2008CST | | | 0 | 0 | | | Marine Tstm Wind (M45) |
| LMZ646 | Wind Pt | Lt Wi | To | Winthrop | Hbr | II | | | |
| 1.5 E Racine | 18 | 2011CST | | | 0 | 0 | | | Marine Tstm Wind (M42) |
| LMZ646 | Wind Pt | Lt Wi | To | Winthrop | Hbr | II | | | |
| 35 E Kenosha | 18 | 2300CST | | | 0 | 0 | | | Marine Tstm Wind (M40) |

A series of short lines of severe thunderstorms developed ahead and along a cold front which moved east across Lake Michigan. Powerful wind gusts were produced.

WISCONSIN, Southeast

| | |
|------------------------------------|---|
| WIZ046>047-051>052-056>060-062>072 | Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha |
| 13 | 0100CST 0730CST |
| | 0 0 |
| | Fog |

Dense fog developed during the overnight hours, lowering visibilities to 18 to 1/4 mile. Several airplane flights were delayed at most airports.

Dane County

| | | | | | | | |
|------------------|----|---------|---|---|--|--|--|
| 4 S Cross Plains | 14 | 1720CST | 0 | 0 | | | Hail(0.75) |
| | | | | | | | Isolated severe thunderstorm. Severe weather spotter trailing the storm noted some cloud base rotation and a in-flow/feeder cloud band underneath the updraft tower. |

| | | | | | |
|------------------------------------|---|---|---|----------------|--|
| WIZ046>047-051>052-056>060-062>072 | Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha | | | | |
| 15 | 1300CST | 1 | 0 | Excessive Heat | |
| 18 | 1500CST | | | | |

An out-of-season heat wave affected south-central and southeast Wisconsin thanks to a very warm, moist airmass which settled in for the 4-day period of April 15-18. Maximum afternoon temperatures were mostly in the mid 80s to lower 90s, and overnight lows in the 60s, or about 30 to 35 degrees above normal! Specifically, Milwaukee's Mitchell Field (Milwaukee Co.) topped out at 88, 86, 82, and 88 for the four days. In Madison (Dane Co.), maximum readings were 87, 86, 78, and 85. On the 15th, the Janesville Airport (Rock Co.) and West Allis (Milwaukee Co.) peaked at 91. On the 16th, Burlington (Racine Co.) and West Allis topped out at 90. On the 17th, an 85 was observed at West Allis, Mt. Mary College (Milwaukee Co.), and Racine (Racine Co.). On the 18th, Burlington had high honors with 91. Surface dewpoints were in the 60 to 65 degree range. Southwest winds gusted to 25 to 35 mph during the daytime hours of this 4-day period. A 50-year-old male died (direct death - Milwaukee County medical examiner classification) in a community-based residential home in Milwaukee County about 1600CST on April 16th. Although the heat index in Milwaukee County on April 16th was only in the upper 80s to lower 90s, the early-season nature and length of this heat wave was sufficient to adversely affect one individual. M50PH



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April 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | Character of Storm |
|--|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------------------------|
| | | | | | Killed | Injured | Property Crops | |
| <u>WISCONSIN, Southeast</u> | | | | | | | | |
| Sheboygan County | | | | | | | | |
| Plymouth | 18 | 0636CST | | | 0 | 0 | | Hail(0.75) |
| Fond Du Lac County | | | | | | | | |
| Waupun | 18 | 0647CST | | | 0 | 0 | 3K | Lightning |
| Sheboygan County | | | | | | | | |
| Sheboygan | 18 | 0655CST | | | 0 | 0 | 1K | Hail(0.75) |
| A warm front lifting north through southern Wisconsin triggered elevated convection. A couple of the storms became severe. The hail damaged garden vegetables at Lakeland College in Sheboygan. Lightning started a fire which damaged the roof of a home in Waupun. | | | | | | | | |
| Marquette County | | | | | | | | |
| 4 E Oxford | 18 | 1254CST | | | 0 | 0 | | Hail(0.75) |
| Columbia County | | | | | | | | |
| 3 S Portage | 18 | 1415CST | | | 0 | 0 | | Lightning |
| Lafayette County | | | | | | | | |
| 3 NW Belmont | 18 | 1415CST | | | 0 | 0 | 0.50K | Hail(1.00) |
| Lafayette County | | | | | | | | |
| Belmont | 18 | 1417CST | | | 0 | 0 | 3K | Hail(1.75) |
| Iowa County | | | | | | | | |
| 1 S Mineral Pt | 18 | 1438CST | | | 0 | 0 | | Hail(0.88) |
| Sauk County | | | | | | | | |
| Merrimac | 18 | 1500CST | | | 0 | 0 | | Hail(1.00) |
| Sauk County | | | | | | | | |
| Prairie Du Sac | 18 | 1500CST | | | 0 | 0 | | Hail(0.88) |
| Columbia County | | | | | | | | |
| Portage | 18 | 1509CST | | | 0 | 0 | | Hail(1.00) |
| Sauk County | | | | | | | | |
| 3 E Baraboo | 18 | 1515CST | | | 0 | 0 | | Thunderstorm Wind (E61) |
| Columbia County | | | | | | | | |
| 5 NNE Okee | 18 | 1520CST | | | 0 | 0 | | Hail(1.00) |
| Sauk County | | | | | | | | |
| Merrimac | 18 | 1533CST | | | 0 | 0 | 2K | Hail(1.75) |
| Jefferson County | | | | | | | | |
| 3 S Ft Atkinson | 18 | 1540CST | | | 0 | 0 | | Lightning |
| Marquette County | | | | | | | | |
| Endeavor | 18 | 1553CST | | | 0 | 0 | | Hail(0.75) |
| Dane County | | | | | | | | |
| Madison | 18 | 1600CST | | | 0 | 0 | | Hail(0.75) |
| Dane County | | | | | | | | |
| Madison | 18 | 1600CST | | | 0 | 0 | 5K | Lightning |
| Dane County | | | | | | | | |
| 1 SW (Msn)Truax Fld M | 18 | 1610CST | | | 0 | 0 | | Hail(1.00) |
| Dane County | | | | | | | | |
| 1 SW Madison | 18 | 1610CST | | | 0 | 0 | | Hail(1.00) |
| Rock County | | | | | | | | |
| 2 NE Clinton | 18 | 1615CST | | | 0 | 0 | | Funnel Cloud |
| Dane County | | | | | | | | |
| Madison | 18 | 1622CST | | | 0 | 0 | 5K | Lightning |



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April 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
|------------------------------------|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|-------------------------|
| | | | | | Killed | Injured | Property | Crops | |
| <u>WISCONSIN, Southeast</u> | | | | | | | | | |
| Rock County | | | | | | | | | |
| Milton | 18 | 1625CST | | | 0 | 0 | | | Thunderstorm Wind (M57) |
| Dane County | | | | | | | | | |
| Madison | 18 | 1629CST | | | 0 | 0 | | | Hail(0.88) |
| Green Lake County | | | | | | | | | |
| Berlin | 18 | 1634CST 1639CST | | | 0 | 0 | | | Hail(0.75) |
| Dane County | | | | | | | | | |
| Monona | 18 | 1635CST | | | 0 | 0 | | | Hail(0.75) |
| Rock County | | | | | | | | | |
| Evansville | 18 | 1800CST | | | 0 | 0 | | | Hail(1.00) |
| Dane County | | | | | | | | | |
| Deerfield | 18 | 1830CST | | | 0 | 0 | 5K | | Hail(2.00) |
| Iowa County | | | | | | | | | |
| 2 W Highland | 18 | 1836CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Rock County | | | | | | | | | |
| Janesville | 18 | 1840CST | | | 0 | 0 | | | Hail(0.75) |
| Rock County | | | | | | | | | |
| Johnstown to 1.2 E Johnstown | 18 | 1844CST 1847CST | | | 0 | 0 | | | Hail(0.75) |
| Marquette County | | | | | | | | | |
| Briggsville | 18 | 1937CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Iowa County | | | | | | | | | |
| Dodgeville | 18 | 1958CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Columbia County | | | | | | | | | |
| Poynette | 18 | 2005CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Green Lake County | | | | | | | | | |
| 5 SSW Green Lake | 18 | 2010CST | | | 0 | 0 | | | Hail(0.75) |
| Dodge County | | | | | | | | | |
| Beaver Dam | 18 | 2023CST | | | 0 | 0 | | | Thunderstorm Wind (M53) |
| Lafayette County | | | | | | | | | |
| Gratiot to Woodford | 18 | 2030CST 2050CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Dane County | | | | | | | | | |
| Middleton | 18 | 2032CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Dodge County | | | | | | | | | |
| Waupun | 18 | 2037CST | | | 0 | 0 | | | Thunderstorm Wind (M52) |
| Fond Du Lac County | | | | | | | | | |
| Waupun | 18 | 2037CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Dodge County | | | | | | | | | |
| 4 NE Horicon | 18 | 2040CST | | | 0 | 0 | | | Lightning |
| Dodge County | | | | | | | | | |
| Watertown to Mayville | 18 | 2040CST 2045CST | | | 0 | 0 | 55K | | Thunderstorm Wind (E52) |
| Green County | | | | | | | | | |
| 4.5 NNW Browntown to Monroe | 18 | 2045CST 2055CST | | | 0 | 0 | 200K | | Thunderstorm Wind (E61) |
| Jefferson County | | | | | | | | | |
| Lake Mills | 18 | 2045CST | | | 0 | 0 | | | Thunderstorm Wind (M51) |



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| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | Estimated Damage Property Crops | Character of Storm |
|--|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|-------------------------|
| <u>WISCONSIN, Southeast</u> | | | | | | | |
| Green County | | | | | | | |
| 1 WSW Brodhead | 18 | 2102CST | | | 0 0 | 15K | Thunderstorm Wind (E56) |
| Sheboygan County | | | | | | | |
| Greenbush | 18 | 2111CST | | | 0 0 | | Hail(0.75) |
| Rock County | | | | | | | |
| (Jvl)Rock Co Arpt Ja to 5 NE Beloit | 18 | 2114CST 2122CST | | | 0 0 | 10K | Thunderstorm Wind (M55) |
| Washington County | | | | | | | |
| West Bend | 18 | 2115CST | | | 0 0 | 3K | Thunderstorm Wind (E52) |
| Walworth County | | | | | | | |
| Whitewater | 18 | 2125CST | | | 0 0 | | Thunderstorm Wind (M52) |
| Milwaukee County | | | | | | | |
| Brown Deer | 18 | 2132CST | | | 0 0 | | Thunderstorm Wind (M53) |
| Racine County | | | | | | | |
| Burlington | 18 | 2157CST | | | 0 0 | | Thunderstorm Wind (E52) |
| Kenosha County | | | | | | | |
| 1 NNE Silver Lake | 18 | 2203CST | | | 0 0 | 4K | Thunderstorm Wind (E52) |

Severe storms, with large hail and damaging, straight-line, downburst winds, developed ahead and along a cold front, which plowed east into an unseasonably warm, moist airmass over southern Wisconsin. Maximum afternoon temperatures were mostly in the 80s (about 30 to 35 degrees above normal) during the 4-day period of April 15-18. The hail stones ranged from 3/4 inch to 2 inches in diameter, resulting in several vehicles receiving dents (in Lafayette, Sauk, and Dane County). The damaging winds were mostly in the 60 to 70 mph range resulting in numerous reports of uprooted trees. Dozens of power lines were pulled down as broken tree branches fell on them. About 25,000 customers lost electrical power, based on utility company records. The areas with the largest amount of tree damage were: 1) from Graiot to Woodford in Lafayette Co., 2) from northwest of Browntown to Monroe in Green Co., and 3) from Watertown to Mayville in Dodge Co. Otherwise, tree damage due to wet microbursts was scattered. A semi-trailer northeast of Beloit on Interstate 90 sustained damage when it was blown over by the powerful thunderstorm winds. Just west-southwest of Brodhead, a shed was blown down. In the area northwest of Browntown to Monroe, a barn was blown down, a shed was blown on to a home, and two residential roofs were damaged by broken tree limbs. A shed under construction at the Watertown High School in Dodge County was damaged by the powerful winds. A wind-toppled tree damaged a vehicle near Silver Lake (Kenosha Co.). Lightning started a 75 acre grass fire in the Horicon Marsh in Dodge County, a 1 acre grass fire south of Ft. Atkinson in Jefferson County, and a 5 acre grass fire south of Portage in Columbia County. Elsewhere, separate lightning strikes started fires which damaged the roof of two Madison (Dane Co.) homes. Several of the thunderstorms had mesocyclones, and cloud-base rotation was noted by severe weather spotters, however there were no tornado reports.



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May 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|--------------------|
| | | | | | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

Sauk County

| | | | | | | | | | |
|-------------|----|---------|--|--|---|---|--|--|------------|
| 2 S Baraboo | 06 | 1655CST | | | 0 | 0 | | | Hail(0.75) |
|-------------|----|---------|--|--|---|---|--|--|------------|

Columbia County

| | | | | | | | | | |
|------------|----|---------|--|--|---|---|--|--|------------|
| 1.5 SE Rio | 06 | 1724CST | | | 0 | 0 | | | Hail(0.75) |
|------------|----|---------|--|--|---|---|--|--|------------|

Dodge County

| | | | | | | | | | |
|------------|----|---------|--|--|---|---|--|--|------------|
| 1 N Neosho | 06 | 2013CST | | | 0 | 0 | | | Hail(0.75) |
|------------|----|---------|--|--|---|---|--|--|------------|

Iowa County

| | | | | | | | | | |
|--------------|----|---------|--|--|---|---|--|--|------------|
| 3 N Ridgeway | 06 | 2040CST | | | 0 | 0 | | | Hail(0.75) |
|--------------|----|---------|--|--|---|---|--|--|------------|

Scattered late-afternoon and evening marginally-severe thunderstorms popped up over parts of south-central and southeast Wisconsin. Synoptically, a low-pressure moved northeast through southwestern Wisconsin while a warm front pushed north of a Madison to Milwaukee line. Elevated convection resulted. Daytime maximum temperatures were in the mid to upper 70s with surface dewpoints in the lower 60s.

Sauk County

| | | | | | | | | | |
|------------------------------|----|--------------------|--|--|---|---|--|--|----------------------|
| Reedsburg to Spring Green | 08 | 2100CST 2359CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
|------------------------------|----|--------------------|--|--|---|---|--|--|----------------------|

A couple thunderstorm complexes trained east-northeast across Sauk County and dumped very heavy rains which resulted in small stream and urban flooding. Most of the flooding was confined to bottomland near small streams, which quickly exceeded their banks. In Reedsburg, 1.00 inches of rain fell between 2137 and 2152CST. At this location, 2.25 inches fell between 2135 and 2210CST. At Bear Valley, on the Sauk-Richland county line, unofficial reports indicated that 3 to 4 inches fell between 1930 and 2205CST. Synoptically, low-pressure moved northeast through southwestern Wisconsin to northern Lake Michigan. Leading up to this event, daytime maximum temperatures were in the mid to upper 70s and surface dewpoints were in the lower 60s.

Sauk County

| | | | | | | | | | |
|---|----|---------|--|--|---|---|--|--|------------|
| 5.5 W Spring Green to 2.5 W Spring Green | 30 | 1750CST | | | 0 | 0 | | | Hail(1.75) |
|---|----|---------|--|--|---|---|--|--|------------|

Iowa County

| | | | | | | | | | |
|-------|----|---------|--|--|---|---|--|--|------------|
| Arena | 30 | 1802CST | | | 0 | 0 | | | Hail(1.75) |
|-------|----|---------|--|--|---|---|--|--|------------|

Marquette County

| | | | | | | | | | |
|---|----|--------------------|--|--|---|---|--|--|------------|
| 2 NNE Briggsville to 3 ESE Briggsville | 30 | 1806CST 1815CST | | | 0 | 0 | | | Hail(1.00) |
|---|----|--------------------|--|--|---|---|--|--|------------|

Columbia County

| | | | | | | | | | |
|---------------------------------|----|--------------------|--|--|---|---|--|--|------------|
| 6 NNE Portage to 5 N Portage | 30 | 1815CST 1820CST | | | 0 | 0 | | | Hail(1.00) |
|---------------------------------|----|--------------------|--|--|---|---|--|--|------------|

Iowa County

| | | | | | | | | | |
|----------|----|---------|--|--|---|---|--|--|--------------|
| Ridgeway | 30 | 1818CST | | | 0 | 0 | | | Funnel Cloud |
|----------|----|---------|--|--|---|---|--|--|--------------|

Dane County

| | | | | | | | | | |
|-------------|----|---------|--|--|---|---|--|--|--------------|
| Blue Mounds | 30 | 1836CST | | | 0 | 0 | | | Funnel Cloud |
|-------------|----|---------|--|--|---|---|--|--|--------------|

Dodge County

| | | | | | | | | | |
|------------|----|---------|--|--|---|---|--|--|--------------|
| Beaver Dam | 30 | 1840CST | | | 0 | 0 | | | Funnel Cloud |
|------------|----|---------|--|--|---|---|--|--|--------------|

Scattered severe thunderstorms developed and moved southeast across parts of south-central Wisconsin. Large hail, up to golf-ball size, resulted thanks to a cold, northwest flow pattern aloft coupled with moderate to strong low-level warm air advection. The storms occurred along and ahead of a surface trough of low-pressure which preceded a cold front. The thunderstorm updraft towers were fairly strong thanks to maximum temperatures in the mid 80s and CAPES of 2000-2500J/KG, which led to several funnel cloud reports. WSR-88D Doppler radar imagery indicated only weak low to mid level rotation. One storm chaser report from Dodge county indicated that a funnel cloud, persisting for about 8 minutes, developed after the updraft/cloud base had started to decay.



National Weather Service

Storm Data and Unusual Weather Phenomena



June 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

LAKE MICHIGAN

LMZ646 **Wind Pt Lt Wi To Winthrop Hbr II**
Wind Point to **03** **0710CST** **0** **0** **Marine Tstm Wind (M50)**
Kenosha **0955CST**

A line of severe thunderstorms moved east of Racine and Kenosha counties. Powerful northwest winds gusting to 58 knots (67 mph) were noted at the Racine Wastewater Treatment Plant on the Lake Michigan shoreline as the storms initially moved out over the lake, and 50 kt (58 mph) peak gusts out of the southeast were registered at the GLERL site in Kenosha, on the back side of the storms. At this coastal site, sustained winds were 35 kts (40 mph) or higher between 0855 and 0955CST. The southeast backside winds were due to a wake-low which developed over southeast Wisconsin.

LMZ645 **North Pt Lt To Wind Pt Wi**
North Point Lthouse to **10** **1950CST** **0** **0** **Marine Tstm Wind (M41)**
Wind Point

Severe thunderstorms over southeast Wisconsin moved out over the nearshore waters of Lake Michigan east of Milwaukee and Racine counties.

LMZ643 **Sheboygan To Pt Washington Wi**
3.5 NE Port Washington **14** **1130CST** **0** **0** **Waterspout**
3.3 NE Port Washington **1133CST**

A short-lived waterspout spun up about 1/2 mile out over the nearshore waters of Lake Michigan northeast of Port Washington (Ozaukee Co.). It was observed by a trained spotter who was traveling south along Interstate 43. Scattered thunderstorms developed and moved southeast along a surface trough/shear line that extended northwest to southeast from Lake Winnebago through Ozaukee County to east of Milwaukee. Apparently, a vortex on the shear line was stretched vertically by the updraft tower of a thunderstorm. The width of the waterspout at the water surface was about 10 to 15 yards. No damage was noted.

LMZ645 **North Pt Lt To Wind Pt Wi**
Milwaukee Harbor to **15** **1623CST** **0** **0** **Marine Hail (0.88)**
Wind Point **1632CST**

LMZ646 **Wind Pt Lt Wi To Winthrop Hbr II**
Racine to **15** **1627CST** **0** **0** **Marine Hail (0.75)**
Winthrop Harbor II

Severe thunderstorms packing large hail moved east out over the Lake Michigan waters between the Milwaukee Harbor and Winthrop Harbor, IL.

LMZ646 **Wind Pt Lt Wi To Winthrop Hbr II**
Wind Point to **15** **1707CST** **0** **0** **Marine Hail (0.75)**
Winthrop Harbor II

Scattered severe thunderstorms with large hail moved east out over the Lake Michigan waters between Wind Point, WI and Winthrop Harbor, IL.

WISCONSIN, Southeast

| | | | | | | | | |
|----------------------------|----|--------------------|---|---|-----|--|----------------------|--|
| Sauk County | | | | | | | | |
| Spring Green | 03 | 0415CST | 0 | 0 | | | Hail(0.75) | |
| Dane County | | | | | | | | |
| Springfield Corners | 03 | 0500CST 0700CST | 0 | 0 | | | Urban/Sml Stream Fld | |
| Dane County | | | | | | | | |
| Stoughton | 03 | 0540CST | 0 | 0 | 20K | | Lightning | |
| Milwaukee County | | | | | | | | |
| Milwaukee to Brown Deer | 03 | 0600CST 0800CST | 0 | 0 | | | Urban/Sml Stream Fld | |
| Waukesha County | | | | | | | | |
| Menomonee Falls | 03 | 0600CST | 0 | 0 | | | Urban/Sml Stream Fld | |



National Weather Service

Storm Data and Unusual Weather Phenomena



June 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | Estimated Damage Property Crops | Character of Storm |
|------------------------------------|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|-------------------------|
| <u>WISCONSIN, Southeast</u> | | | | | | | |
| Walworth County | | | | | | | |
| 2.5 NNE East Troy | 03 | 0640CST | | | 0 0 | 5K | Thunderstorm Wind (E56) |
| Kenosha County | | | | | | | |
| Twin Lakes to Kenosha | 03 | 0655CST 0725CST | | | 0 0 | 75K | Thunderstorm Wind (E56) |
| Racine County | | | | | | | |
| Burlington to Racine | 03 | 0655CST 0725CST | | | 0 0 | 200K | Thunderstorm Wind (M58) |
| Racine County | | | | | | | |
| 5 NW Sturtevant | 03 | 0700CST | | | 0 0 | 10K | Heavy Rain |
| Racine County | | | | | | | |
| Sturtevant | 03 | 0709CST | | | 0 0 | | Funnel Cloud |
| Kenosha County | | | | | | | |
| Kenosha | 03 | 0715CST | | | 0 0 | | Hail(0.88) |
| Rock County | | | | | | | |
| 2 E Avalon | 03 | 0802CST | | | 0 0 | | Hail(0.75) |
| Walworth County | | | | | | | |
| 2 SE Fontana | 03 | 0825CST | | | 0 0 | 10K | Thunderstorm Wind (E56) |
| Dane County | | | | | | | |
| Fitchburg | 03 | 0830CST | | | 0 0 | 0.50K | Lightning |
| WIZ071>072 | | | | | | | |
| Racine - Kenosha | 03 | 0855CST 0955CST | | | 0 0 | | High Wind (E50) |

Three lines of severe thundrestorms moved east-southeast across south-central and southeast Wisconsin. The last line was the strongest of the three. Damaging, straightline winds were the most common type of severe weather, although some large hail stones were spotted. Brief, torrential downpours accompanied some of the storms, especially in the counties of Dane, Racine and Kenosha. The toppled trees pulled down power lines near Fontana (Walworth Co.), and across much of Racine and Kenosha counties. The Racine Wastewater Treatment Plant registered a peak northwest wind gust of 58 kts (67 mph). In the cities of Sturtevant (Racine Co.) and Racine, 4 vehicles and 2 garages were damaged or destroyed due to felled trees. On another Racine home, the wind blew an old chimney down. At least another 4 homes in Racine had some gutter or siding damage. In Sturtevant, a flaf pole was bend 45 degrees, and a stored pontoon boat was flipped over. A covered wagon in Kansasville (Racine Co.) was damaged when the thunderstorm winds blew it over. Roof shingles were ripped off several homes in the city of Kenosha. One Kenosha home had a large tree fall on its roof, damaging the chimney, gutters, and wood trim. A large yacht was blown off its perch and into a fence near the Lake Michigan shoreline in downtown Kenosha, but sustained only minor damage. Lightning struck an apartment building in Stoughton (Dane Co.), starting a fire that left \$20,000 in damage. In Fitchburg (Dane Co.), lightning struck a home and traveled down a pipe to the basement where a small fire started in a rubbish bin. Rainfall amounts of 1 to 2 inches generated some small stream flooding that pushed water over the roads in Sringfield Corners (Dane Co.). Up to 3.5 inches of rain fell in Menomonee Falls (Waukesha Co.) resulting in urban flooding, which extened east across northern Milwaukee County where 2 to 3 inches fell. Several roads in northern Milwaukee County had water up to 12 to 18 inches deep. Heavy rains in Racine County lead to hydroplaining problems on Interstate 94 where a semitrailer truck jack-knifed and rolled over at about 0730CST.

A wake-low developed over southeastern Wisconsin on the west side of the 3rd line of storms, after it had moved east to over Lake Michigan. The pressure gradient between the thunderstorm-induced mesohigh over Lake Michigan and the wake low in the vicinity of Madison to Whitewater generated a high wind event over the eastern parts of the counties of Racine and Kenosha. Southeast winds gusted to 50 knots (58 mph) at the GLERL observation site on the shore of Lake Michigan in downtown Kenosha at 0900CST, and were equal to or greater than 35 kts (40 mph) between 0855 and 0955CST. Numerous trees were pushed down by the high winds, and a greenhouse on the UW-Parkside campus sustained window damage. Gusty southeast winds to 30 to 43 knots (35 to 50 mph) were noted over the remainder of southeast and south-central Wisconsin south of Interstate 94 and east of Interstate 90, resulting in many small branches breaking off of trees. The combination of severe thunderstorms followed by high winds resulted in 18,000 customers losing electrical power in the counties of Racine and Kenosha. About 200 lines were down either due to the winds or lightning.



National Weather Service

Storm Data and Unusual Weather Phenomena



June 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

Lafayette County

| | | | | | | | | |
|--------------------------------------|----|--------------------|--|--|---|---|----|-------------|
| 3 E Darlington to 3 SE Darlington | 04 | 1100CST 1230CST | | | 0 | 0 | 5K | Flash Flood |
|--------------------------------------|----|--------------------|--|--|---|---|----|-------------|

Torrential rainfalls associated with slow-moving thunderstorms, resulted in some gravel shoulder washouts near a bridge on State Highway 81 east of Darlington. The road was blocked off as a precautionary measure due to high water levels on the local river. There were several reports of mud and gravel washed down from driveways onto roads in the Darlington area east to Green County. The Darlington Wastewater treatment plant measured 3.97 inches of rain during the morning and early afternoon hours. Further southeast in Monroe (Green Co.), the treatment plant in that city measured 3.62 inches, but luckily no flooding problems were noted.

Racine County

| | | | | | | | | |
|--------|----|---------|--|--|---|---|----|-----------|
| Racine | 04 | 1100CST | | | 0 | 0 | 5K | Lightning |
|--------|----|---------|--|--|---|---|----|-----------|

Lightning struck near an unoccupied home in the central part of the city of Racine and traveled through power lines into the home. The homes siding and electrical wiring were damaged.

Rock County

| | | | | | | | | |
|----------------|----|---------|--|--|---|---|--|-------------------------|
| 3.5 SE Clinton | 10 | 1815CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|----------------|----|---------|--|--|---|---|--|-------------------------|

Walworth County

| | | | | | | | | |
|-----------------------|----|--------------------|--|--|---|---|--|-------------------------|
| Sharon to Walworth | 10 | 1817CST 1825CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|-----------------------|----|--------------------|--|--|---|---|--|-------------------------|

Rock County

| | | | | | | | | |
|--------------|----|---------|--|--|---|---|--|-------------------------|
| 2 E Edgerton | 10 | 1820CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|--------------|----|---------|--|--|---|---|--|-------------------------|

Jefferson County

| | | | | | | | | |
|----------------|----|---------|--|--|---|---|--|-------------------------|
| 3.2 NE Concord | 10 | 1915CST | | | 0 | 0 | | Thunderstorm Wind (E52) |
|----------------|----|---------|--|--|---|---|--|-------------------------|

Milwaukee County

| | | | | | | | | |
|-----------|----|--------------------|--|--|---|---|--|----------------------|
| Milwaukee | 10 | 1930CST 2100CST | | | 0 | 0 | | Urban/Sml Stream Fld |
|-----------|----|--------------------|--|--|---|---|--|----------------------|

Waukesha County

| | | | | | | | | |
|--------|----|---------|--|--|---|---|--|-------------------------|
| Sussex | 10 | 1936CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|--------|----|---------|--|--|---|---|--|-------------------------|

Milwaukee County

| | | | | | | | | |
|-----------|----|---------|--|--|---|---|--|------------|
| Greendale | 10 | 1940CST | | | 0 | 0 | | Hail(0.75) |
|-----------|----|---------|--|--|---|---|--|------------|

Milwaukee County

| | | | | | | | | |
|---------------------------|----|--------------------|--|--|---|---|--|-------------------------|
| Greendale to Shorewood | 10 | 1950CST 2005CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|---------------------------|----|--------------------|--|--|---|---|--|-------------------------|

Scattered, evening, severe thunderstorms with damaging straight-line winds and large hail developed over parts of south-central and southeast Wisconsin. The powerful winds toppled trees which pulled down power lines. In addition, brief, torrential rainfalls resulted in urban flooding on the southwest side of the city of Milwaukee around 76th and Oklahoma, where water was 10 inches deep on roads. About 4,000 homes in Jefferson and Milwaukee counties lost electrical power due to downed lines or lightning hits.

Dane County

| | | | | | | | | |
|-----------------|----|---------|--|--|---|---|--|-------------------------|
| 3 WSW Mazomanie | 11 | 0400CST | | | 0 | 0 | | Thunderstorm Wind (E61) |
|-----------------|----|---------|--|--|---|---|--|-------------------------|

Numerous large trees were uprooted by a very localized, wet-microburst as a cluster of severe storms moved east-southeast across Dane County. The pulse-type storms quickly diminished in strength after moving out of the northwest part of Dane County.

Washington County

| | | | | | | | | |
|-------------------------|----|--------------------|--|--|---|---|--|------------|
| West Bend to Jackson | 15 | 1326CST 1330CST | | | 0 | 0 | | Hail(0.75) |
|-------------------------|----|--------------------|--|--|---|---|--|------------|

Fond Du Lac County

| | | | | | | | | |
|-------------|----|--------------------|--|--|---|---|--|------------|
| Fond Du Lac | 15 | 1358CST 1400CST | | | 0 | 0 | | Hail(0.75) |
|-------------|----|--------------------|--|--|---|---|--|------------|



National Weather Service

Storm Data and Unusual Weather Phenomena



June 2002

| June 2002 | | | | | | | | |
|---|------|----------------------------|---------------------------|--------------------------|---|---|--|-------------------------|
| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | | Estimated Damage Property Crops | Character of Storm |
| <u>WISCONSIN, Southeast</u> | | | | | | | | |
| Milwaukee County Timmerman Arpt | 15 | 1559CST | | | 0 | 0 | | Hail(0.75) |
| Milwaukee County 3 N General Mitchell Arj | 15 | 1623CST | | | 0 | 0 | | Hail(0.75) |
| Racine County 1 N Racine | 15 | 1627CST | | | 0 | 0 | | Hail(0.88) |
| Milwaukee County 3.7 SW General Mitchell | 15 | 1629CST | | | 0 | 0 | | Hail(0.75) |
| Milwaukee County Oak Creek | 15 | 1632CST | | | 0 | 0 | | Hail(0.75) |
| Racine County Racine | 15 | 1707CST | | | 0 | 0 | | Hail(0.75) |
| Scattered severe thunderstorms moved through southeast Wisconsin dumping large hail. The ground was covered white around Timmerman Field on the northwest side of the city of Milwaukee. | | | | | | | | |
| Dane County Madison to Sun Prairie | 16 | 1845CST 1850CST | | | 0 | 0 | | Thunderstorm Wind (E52) |
| Several large trees were toppled by powerful straight-line winds as an isolated severe thunderstorm moved through Dane County. | | | | | | | | |
| WIZ065>066-070>072 Waukesha - Milwaukee - Walworth - Racine - Kenosha | | | | | | | | |
| | 20 | 0000CST 2359CST | | | 1 | 0 | | Excessive Heat |
| A brief, one day heat wave affected parts of southeast Wisconsin, resulting in the death of a 38-year-old male in the city of Milwaukee. After several days with maximum temperatures in the 50s, 60's and 70's, the heat on June 20th was sudden enough to affect humans. Milwaukee Mitchell Field registered a high of 90 and a minimum of 72, about 13 to 15 degrees above normal. Similar readings were noted elsewhere in southeast Wisconsin. Heat indices were 95 to 100, thus this heat wave didn't meet the official criteria for a heat wave. Full sunshine and southwest winds of 15 to 25 mph were also observed. M38PH | | | | | | | | |
| Marquette County 5 E Endeavor | 21 | 1615CST | | | 0 | 0 | | Hail(0.75) |
| Columbia County Marcellon | 21 | 1640CST | | | 0 | 0 | | Funnel Cloud |
| Columbia County 1 N Friesland | 21 | 1705CST | | | 0 | 0 | | Hail(0.75) |
| Sauk County 4 NW Rock Spgs | 21 | 1705CST | | | 0 | 0 | | Hail(0.75) |
| Dodge County 2 W Fox Lake | 21 | 1719CST | | | 0 | 0 | | Hail(0.75) |
| Dodge County 1 W Fox Lake | 21 | 1725CST | | | 0 | 0 | | Thunderstorm Wind (E65) |
| Dodge County 2 SW Fox Lake | 21 | 1745CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
| Sauk County Rock Spgs | 21 | 1748CST | | | 0 | 0 | | Hail(0.75) |
| Columbia County 4 N Pardeeville | 21 | 1810CST | | | 0 | 0 | | Hail(0.75) |

Short lines or clusters of severe thunderstorms moved southeast across parts of south-central and southeast Wisconsin, producing downbursts of straight-line winds and large hail. Just west of Fox Lake (Dodge Co.), the powerful winds demolished a shed and



National Weather Service

Storm Data and Unusual Weather Phenomena



June 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | Estimated Damage Property Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|--------------------|

WISCONSIN, Southeast

blew it onto a road. Southwest of Fox Lake the winds blew down county road signs. On the Milwaukee-Sullivan WSR-88D Doppler radar system, a decent mesocyclone was evident with a thunderstorm that moved southeast across the far northwest part of Columbia County into northwest Dodge County. The lack of low level boundaries ahead of this storm may have played a part in diminishing the lower atmosphere's ability to spin up into a tornado.

Green Lake County

**5 W Fairburn to
8 N Princeton**

**22 0300CST
0500CST 0 0 10K Flash Flood**

Marquette County

5.5 WSW Neshkoro

**22 0300CST
0500CST 0 0 10K Flash Flood**

At least 3 lines of thunderstorms with heavy rains sagged south into the northern parts of Marquette and Green Lake counties during the overnight hours. Individual thunderstorm cells trained west to east, ultimately resulting in flash flooding which caused gravel shoulder washouts on some roads as well as road closures. WSR-88D Doppler radar estimated that 5 to 6 inches of rain fell between 2100CST on August 21st through about 0300CST on August 22nd. Further north, 8 to 15 inches were reported in parts of Juneau, Adams, Waushara, Wood, and Portage counties! Refer to the StormData reports produced by WFO La Crosse and WFO Green Bay for detailed flash flood information for central and northeastern Wisconsin, respectively.

**WIZ059>060-064>066-
069>072**

Washington - Ozaukee - Jefferson - Waukesha - Milwaukee - Rock - Walworth - Racine - Kenosha

**22 1200CST
25 1800CST 1 0 Excessive Heat**

A long-duration, early-season, heat wave affected Milwaukee and Racine counties, resulting in a directly-related death, and an indirectly-related death. This heat wave didn't meet official heat-wave criteria, but the duration and timing was sufficient to adversely affect humans. A 43-year old City of Milwaukee man was found dead on the steps of a Milwaukee church with a body temperature of 111 on June 23rd. Heat was the primary cause of death based on medical reports (death is directly related to heat). The maximum air temperature was only in the lower 90s across the city of Milwaukee, with General Mitchell Field registering 91. Heat Index values were in the 95 to 100 range. The morning low at Mitchell Field was 71. Normal highs and lows for June 23rd are 78 and 58. In addition, a 37-year-old City of Racine woman died in her apartment on June 23rd, after her body temperature reached 109 degrees. Medical reports indicated that heat was a secondary cause of death (indirectly-related to heat). Maximum air temperatures in Racine ranged from 90 to 91, after overnight lows around 68. Heat indices were in the 95 to 100 degree range. June 23rd was the second of four consecutive days with maximum readings in the lower 90s across southeast and south-central Wisconsin, and minimum temperatures in the upper 60s to lower 70s, both about 12 to 15 degrees above normal. M43OU

Columbia County

Pardeeville

26 0300CST 0 0 100K Lightning

Lightning struck a home in Pardeeville, starting a fire that gutted the 2nd floor. It traveled down to the 1st floor and blew out the front door's frame, blew out light switches, and knocked pictures off walls.

**WIZ046>047-051>052-
056>060-062>072**

Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha

**30 0000CST
2359CST 0 0 Excessive Heat**

The last day of June 30, 2002, was the first of four consecutive days in south-central and southeast Wisconsin with maximum temperatures in the lower to mid 90s and overnight lows in the upper 60s to mid 70s, both about 10 to 15 degrees above normal. No deaths were reported, however, on June 30th, at least 150 people at Milwaukee's Sumerfest (Milwaukee Co.) required first-aid treatment and one was taken to a local hospital for heat exhaustion. At least 6 people in the Madison (Dane Co.) area required medical treatment at local hospitals. Milwaukee Mitchell Field recorded a maximum of 95 on June 30th, while Madison came in with 93. Heat index values on June 30th peaked in the 95 to 104 range, thanks to surface dewpoints in the upper 60s to lower 70s.



National Weather Service

Storm Data and Unusual Weather Phenomena



July 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | | Estimated Damage Property Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--|--|---------------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--|--|---------------------------------------|--------------------|

LAKE MICHIGAN

| | | | | | | | | |
|---|---------------------------------|---------|--|--|---|---|--|------------------------|
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | |
| .5 E Sheboygan | 08 | 1700CST | | | 0 | 0 | | Marine Tstm Wind (M46) |
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | |
| .5 E Sheboygan | 08 | 1900CST | | | 0 | 0 | | Marine Tstm Wind (M36) |
| LMZ644 | Pt Washington To North Pt Lt Wi | | | | | | | |
| 3 E Mequon | 08 | 1950CST | | | 0 | 0 | | Marine Tstm Wind (E52) |
| LMZ644 | Pt Washington To North Pt Lt Wi | | | | | | | |
| 5 SE Mequon | 08 | 1952CST | | | 0 | 0 | | Marine Tstm Wind (E52) |
| A line of strong thunderstorms moved east-southeast out over Lake Michigan, producing powerful wind gusts | | | | | | | | |

| | | | | | | | | |
|--|-------------------------------|---------|--|--|---|---|--|------------------------|
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | |
| Sheboygan | 30 | 2100CST | | | 0 | 0 | | Marine Tstm Wind (M42) |
| A line of severe thunderstorms along a cold front moved east across Lake Michigan, generating powerful wind gusts. | | | | | | | | |

WISCONSIN, Southeast

| | | | | | | | | |
|--|---|---------|--|--|---|---|--|----------------|
| WIZ046>047-051-056>060-062>072 | Marquette - Green Lake - Fond Du Lac - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha | | | | | | | |
| | 01 | 0600CST | | | 0 | 0 | | Excessive Heat |
| | 03 | 1800CST | | | | | | |
| A heat wave, which started on June 30, 2002, continued through the first three days of July, 2002, across south-central and southeast Wisconsin. Maximum temperatures were in the lower to mid 90s and overnight lows in the upper 60s to mid 70s, both about 10 to 15 degrees above normal. A 62-year-old City of Milwaukee man died due to secondary heat-related stress (indirect death). No other deaths were reported, however, dozens of people received first-aid treatment at various community festivals. Heat index values were in the 95 to 104 range. Milwaukee Mitchell Field recorded a minimum of 75 on July 3rd, tying the old record set back in 1965 and 1921. | | | | | | | | |

| | | | | | | | | |
|--|---|---------|--|--|---|---|--|----------------|
| WIZ046>047-051>052-056>060-062>072 | Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha | | | | | | | |
| | 08 | 1100CST | | | 0 | 0 | | Excessive Heat |
| | | 2359CST | | | | | | |
| A single-day heat wave affected a few counties in south-central and southeast Wisconsin, resulting in about a dozen people being treated for the affects of heat at local hospitals. Maximum temperatures were in the lower to mid 90s, and morning lows were in the lower 70s. Afternoon heat index values reached 105 to 108 for at least 3 hours in Rock, Walworth, Racine, and Kenosha counties, meeting the official threshold value for daytime heat indices which is 105 or higher for 3 hours or more. Elsewhere across south-central and southeast Wisconsin heat indices were in the 95 to 104 range. Southwest winds of 13 to 22 kts (15 to 25 mph) offered little relieve. | | | | | | | | |

| | | | | | | | | |
|------------------|----|---------|--|--|---|---|-----|-------------------------|
| Sheboygan County | | | | | | | | |
| 2.4 NE Beechwood | 08 | 1145CST | | | 0 | 0 | 20K | Thunderstorm Wind (E61) |
| Sheboygan County | | | | | | | | |
| 4.3 NE Oostburg | 08 | 1630CST | | | 0 | 0 | 10K | Thunderstorm Wind (E61) |
| Sheboygan County | | | | | | | | |
| Sheboygan | 08 | 1800CST | | | 0 | 0 | | Urban/Sml Stream Fld |
| | | 2100CST | | | | | | |
| Rock County | | | | | | | | |
| Janesville | 08 | 1845CST | | | 0 | 0 | | Thunderstorm Wind (E52) |



National Weather Service

Storm Data and Unusual Weather Phenomena



July 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

Washington County

| | | | | | | | | | |
|-----------------|-----------|----------------|--|--|----------|----------|------------|--|--------------------------------|
| Hartford | 08 | 1913CST | | | 0 | 0 | 10K | | Thunderstorm Wind (E56) |
|-----------------|-----------|----------------|--|--|----------|----------|------------|--|--------------------------------|

Washington County

| | | | | | | | | | |
|----------------|-----------|----------------|--|--|----------|----------|------------|--|--------------------------------|
| Jackson | 08 | 1923CST | | | 0 | 0 | 10K | | Thunderstorm Wind (E56) |
|----------------|-----------|----------------|--|--|----------|----------|------------|--|--------------------------------|

Washington County

| | | | | | | | | | |
|-------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|
| Germantown | 08 | 1927CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|-------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|

Fond Du Lac County

| | | | | | | | | | |
|---|-----------|----------------|--|--|----------|----------|------------|--|--------------------|
| 2.3 SW Fond Du Lac to 2 SE Fond Du Lac | 08 | 1930CST | | | 0 | 0 | 10K | | Flash Flood |
|---|-----------|----------------|--|--|----------|----------|------------|--|--------------------|

Flash flooding closed some roads and washed out some gravel shoulders on the south side of the city of Fond du Lac. Rainfall amounts of 3 to 5 inches were noted, based on WSR-88D estimates and spotter reports. Water depths on US Hwy 41 between 151 and 175 reached 4 to 5 feet.

Ozaukee County

| | | | | | | | | | |
|----------------------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|
| Thiensville to Mequon | 08 | 1940CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|----------------------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|

Milwaukee County

| | | | | | | | | | |
|-------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|
| Brown Deer | 08 | 1942CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
|-------------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|

Waukesha County

| | | | | | | | | | |
|-----------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|
| Pewaukee | 08 | 2200CST | | | 0 | 0 | | | Thunderstorm Wind (M52) |
|-----------------|-----------|----------------|--|--|----------|----------|--|--|--------------------------------|

Kenosha County

| | | | | | | | | | |
|----------------|-----------|----------------|--|--|----------|----------|--|--|-----------------------------|
| Kenosha | 09 | 0000CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
|----------------|-----------|----------------|--|--|----------|----------|--|--|-----------------------------|

A series of severe thunderstorms moved southeast through southeast Wisconsin with powerful winds that toppled trees and power lines, as well as damaging some structures. Damage to power lines resulted in the loss of electrical power to 12,000 customers in the Milwaukee area. Northwest of Beechwood (Sheboygan Co.), the winds destroyed one small metal shed, and rolled over a propane tank. Northeast of Ootsburg (Sheboygan Co.), the powerful winds toppled dozens of trees near Kohler/Andrea State Park, and damaged a couple homes. In Washington County, a car and boat in Hartford were damaged by toppled trees, and a shed near Jackson was blown down. Heavy rains associated with training thunderstorm cells created urban flooding in the city of Kenosha when .71 inches of rain fell in only 11 minutes (at the rate of 5.07 inches per hour). Likewise, urban flooding developed in the city of Sheboygan when 1.81 inches of rain fell in 70 minutes ending at 1910CST (...and 3.57 inches in past 5 hours). Synoptically, a mesoscale convective system moved southeast through Wisconsin overnight on the 7th and in the early morning hours of the 8th. The trailing edge of this system brushed Sheboygan county with isolated severe weather at mid-day. The outflow boundary left over from the MCS focused new thunderstorm development between Fond du Lac and Milwaukee as the low-level jet intensified while a short-wave aloft moved through the area.

WIZ046>047-051-
056>058-062>072

Marquette - Green Lake - Fond Du Lac - Sauk - Columbia - Dodge - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha

| | | | | |
|-----------|----------------|----------|----------|-----------------------|
| 21 | 0000CST | 0 | 0 | Excessive Heat |
| | 2359CST | | | |

Excessive heat affected most of south-central and southeast Wisconsin on July 21st. This turned out to be the hottest day of the summer of 2002 for this area. Interestingly, no heat-related deaths were reported up to the initial time of the publication of this report. After overnight lows in the 70s, afternoon temperatures rose to the mid 90s to around 100, about 10 to 15 degrees above normal for the minimums, and 15 to 20 degrees above normal for the maximums. Afternoon heat indices generally peaked in the 105 to 110 range for several hours, but briefly hit 112 in Racine, Janesville, and Wisconsin Dells. Milwaukee Mitchell Field tied its daily high minimum of 78 degrees, set back in 1932. Locations to hit the century mark for maximum temperatures were: 101 in West Allis, and 100 at Mt. Mary College, both in Milwaukee County. Elsewhere, Delavan (Walworth Co.) and Richfield (Washington Co.) topped out at 100. Milwaukee Mitchell Field and Madison Truax Field peaked at 98.



National Weather Service

Storm Data and Unusual Weather Phenomena



July 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

Racine County

| | | | | | | | | | |
|---------|----|---------|--|--|---|---|----|----|-------------------------|
| Raymond | 26 | 0100CST | | | 0 | 0 | 3K | 2K | Thunderstorm Wind (E56) |
|---------|----|---------|--|--|---|---|----|----|-------------------------|

WIZ066

Milwaukee

| | | | | | | | | | |
|----|--------------------|--|--|--|---|---|--|--|----------------|
| 26 | 1000CST 1800CST | | | | 0 | 0 | | | Excessive Heat |
|----|--------------------|--|--|--|---|---|--|--|----------------|

An isolated severe thunderstorm pulsed up over Racine County, resulting in wind damage to some corn crop near Raymond, as well as some roof shingle damage to a few homes. In Milwaukee County, a 45-year-old male died from heat-related, secondary causes (indirectly-related). Maximum temperatures in Milwaukee County were only in the upper 80s to lower 90s, and heat indices were 98 to 103.

Waukesha County

| | | | | | | | | | |
|----------|----|--------------------|--|--|---|---|--|--|----------------------|
| Waukesha | 27 | 0000CST 0300CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
|----------|----|--------------------|--|--|---|---|--|--|----------------------|

Slow-moving thunderstorms over the city of Waukesha dumped 2.36 inches of rain from 2330CST on July 26th to 0110CST on July 27th, resulting in urban flooding. Water depths on some city streets reached 1 foot.

Iowa County

| | | | | | | | | | |
|------|----|---------|--|--|---|---|--|--|------------|
| Cobb | 27 | 2147CST | | | 0 | 0 | | | Hail(0.75) |
|------|----|---------|--|--|---|---|--|--|------------|

Iowa County

| | | | | | | | | | |
|------------|----|---------|--|--|---|---|--|--|-------------------------|
| Dodgeville | 27 | 2203CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|------------|----|---------|--|--|---|---|--|--|-------------------------|

Iowa County

| | | | | | | | | | |
|-----------------------------------|----|--------------------|--|--|---|---|--|--|-------------------------|
| Hollandale to 4 ESE Hollandale | 27 | 2245CST 2255CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
|-----------------------------------|----|--------------------|--|--|---|---|--|--|-------------------------|

Dane County

| | | | | | | | | | |
|---------------|----|--------------------|--|--|---|---|--|--|-------------------------|
| 1 S Stoughton | 27 | 2250CST 2254CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|---------------|----|--------------------|--|--|---|---|--|--|-------------------------|

Rock County

| | | | | | | | | | |
|----------|----|---------|--|--|---|---|--|--|-------------------------|
| Edgerton | 27 | 2315CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|----------|----|---------|--|--|---|---|--|--|-------------------------|

Rock County

| | | | | | | | | | |
|------------|----|--------------------|--|--|---|---|-----|--|-------------------------|
| 5 E Milton | 27 | 2320CST 2330CST | | | 0 | 0 | 10K | | Thunderstorm Wind (E56) |
|------------|----|--------------------|--|--|---|---|-----|--|-------------------------|

Scattered severe storms with large hail and damaging winds affected parts of south-central Wisconsin during the overnight hours. The storms were triggered by an old outflow boundary that pushed southeast from earlier convection in southeast Minnesota. Strong low-level warm-air advection fueled the storms, but fortunately, a cap prevented more widespread severe weather.

Iowa County

| | | | | | | | | | |
|-----------|----|---------|--|--|---|---|--|--|------------|
| 3 E Arena | 30 | 1943CST | | | 0 | 0 | | | Hail(0.75) |
|-----------|----|---------|--|--|---|---|--|--|------------|

Dane County

| | | | | | | | | | |
|-------------|----|---------|--|--|---|---|--|--|-------------------------|
| Black Earth | 30 | 1955CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
|-------------|----|---------|--|--|---|---|--|--|-------------------------|

Fond Du Lac County

| | | | | | | | | | |
|-------|----|---------|--|--|---|---|--|--|-------------------------|
| Ripon | 30 | 2000CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|-------|----|---------|--|--|---|---|--|--|-------------------------|

Marquette County

| | | | | | | | | | |
|----------------|----|---------|--|--|---|---|--|--|-------------------------|
| 3.6 NW Budsins | 30 | 2030CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
|----------------|----|---------|--|--|---|---|--|--|-------------------------|

A line of thunderstorms, some severe, developed along a cold front moving east across Wisconsin. Isolated severe weather resulted in the form of large hail and damaging winds. The powerful winds toppled trees and felled tree branches snapped several power lines. Maximum temperatures were in the lower 90s with surface dewpoints around 70.



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | | Estimated Damage Property Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--|--|---------------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--|--|---------------------------------------|--------------------|

LAKE MICHIGAN

| | | | | | | | | |
|---|---|----------------|--|--|----------|----------|--|-------------------------------|
| LMZ645 | North Pt Lt To Wind Pt Wi | | | | | | | |
| Milwaukee Harbor | 01 | 1935CST | | | 0 | 0 | | Marine Tstm Wind (M41) |
| A small cluster of thunderstorms pulsed to severe limits over land and then moved out over Lake Michigan | | | | | | | | |
| LMZ645 | North Pt Lt To Wind Pt Wi | | | | | | | |
| Cudahy | 21 | 1839CST | | | 0 | 0 | | Marine Tstm Wind (M36) |
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | |
| Harrington Bch St Prk | 21 | 1902CST | | | 0 | 0 | | Marine Tstm Wind (E56) |
| Clusters and short lines of thunderstorms merged into a single complex over southern Wisconsin and then moved out over Lake Michigan. | | | | | | | | |
| LMZ646 | Wind Pt Lt Wi To Winthrop Hbr Il | | | | | | | |
| Racine | 21 | 1920CST | | | 0 | 0 | | Marine Tstm Wind (E44) |
| LMZ645 | North Pt Lt To Wind Pt Wi | | | | | | | |
| Milwaukee Harbor | 21 | 1930CST | | | 0 | 0 | | Marine Tstm Wind (M40) |
| LMZ645 | North Pt Lt To Wind Pt Wi | | | | | | | |
| Milwaukee Harbor | 21 | 1935CST | | | 0 | 0 | | Marine Tstm Wind (M42) |
| LMZ646 | Wind Pt Lt Wi To Winthrop Hbr Il | | | | | | | |
| Kenosha | 21 | 1940CST | | | 0 | 0 | | Marine Tstm Wind (M43) |
| LMZ646 | Wind Pt Lt Wi To Winthrop Hbr Il | | | | | | | |
| Racine | 21 | 1947CST | | | 0 | 0 | | Marine Tstm Wind (E44) |
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | |
| Sheboygan | 21 | 2000CST | | | 0 | 0 | | Marine Tstm Wind (M40) |
| A small cluster of strong thunderstorms pulsed up over southeast Wisconsin and moved out over Lake Michigan, producing measured wind gusts of 40 to 44 kts (46 to 51 mph) at observation sites along the shoreline. | | | | | | | | |

WISCONSIN, Southeast

| | | | | | | | | |
|---|--|--|----------|----------|-------------|----------------|--|--|
| WIZ046>047-051>052-056>060-062>072 | Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha | | | | | | | |
| 01 | 0000CST | | 0 | 0 | 4.4M | Drought | | |
| 11 | 2359CST | | | | | | | |
| <p>This drought period in August, 2002, (rated as D0 to D1 - abnormally dry to a mild drought), over south-central and southeast Wisconsin, was a continuation from a drought that began on July 1, 2002. Many farmers saw their corn crop wither, and there were reports that soybeans stopped growing or the pods stopped filling. Alfalfa hay cutting also suffered. Grass growth slowed dramatically, or stopped altogether. Most locations received less than 1 inch of rain for the first 11 days of August. In fact, Milwaukee Mitchell Field only had one day of measurable rainfall (.24 inch) in the first 11 days of August, and Madison's Truax Field only had .61 inch on only one day as well. The area from eastern Rock County east to the western parts of Racine and Kenosha counties continued to be the driest in southern Wisconsin. Newspaper reports indicated that agricultural experts expected the corn crop yield at harvest time in the fall may only be 1/2 to 2/3 of normal, and the outlook for soybeans was worse. Sweet corn yields were expected to be 20 to 30 percent below normal. Some farmers reported that their wheat crop died. Large cracks developed in many fields and the grasshopper populations were above normal. In addition, flowage (cfs) on most rivers and streams was only 15 to 25 percent of normal for early August. Maximum temperatures on August 1st and 11th were in the lower to middle 90s across southern Wisconsin; otherwise maximum readings were only in the 70s and 80s in between. For Summer 2002, Milwaukee Mitchell Field had 19 days with maximum temperatures of 90 or higher (7 in June, 9 in July, and 3 in August), while Madison's Truax Field had 11 days (3 in June, 6 in July, and 2 in August).</p> | | | | | | | | |



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|--------------------|
| | | | | | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

Walworth County

5 NW Delavan 01 1805CST 0 0 Hail(0.75)

Walworth County

Spring Prairie to
Honey Creek 01 1830CST
1835CST 0 0 Hail(1.25)

Racine County

Rochester to
Waterford 01 1848CST
1850CST 0 0 Hail(1.75)

Racine County

Racine 01 1905CST 0 0 Funnel Cloud

A small cluster of thunderstorms pulsed to severe limits and produced large hail.

Walworth County

3 SSW Whitewater 09 1515CST 0 0 20K Lightning

Lightning struck a substation south-southwest of Whitewater on Clover Valley Road. It left about 8,000 customers without power for 2 to 4 hours. Due to the inter-connection of electrical lines, a substation near Palmyra (Jefferson County) also sustained damage. Consequently power outages were noted in the Hebron to Palmyra area of southeastern Jefferson County. Many businesses were forced to close early.

Sauk County

4 WNW Plain 11 1515CST 0 0 Hail(1.50)

Sauk County

4.7 SE Black Hawk 11 1540CST 0 0 Hail(0.75)

Dane County

1 S Mazomanie 11 1605CST 0 0 Hail(0.75)

Dane County

Pine Bluff to
2 E Pine Bluff 11 1705CST
1720CST 0 0 200K 100K Hail(2.00)

Dane County

Pine Bluff to
2 E Pine Bluff 11 1705CST
1720CST 0 0 100K Thunderstorm Wind (E70)

Dane County

Waunakee to
1 N Waunakee 11 1705CST 0 0 Thunderstorm Wind (E56)

Dane County

Pine Bluff to
2 E Pine Bluff 11 1715CST
1900CST 0 0 100K 100K Flash Flood

One to two-hour rainfall amounts related to downburst/flash flood event of 08/11/02.

A cluster of severe thunderstorms dumped large hail in parts of southern Sauk County, and then dissipated. Another cluster of severe thunderstorms blossomed over western Dane County, resulting in wind, hail, and flash flood damage in the Pine Bluff area, west of the Madison metro-area. In the Pine Bluff area, hurricane-force downburst winds reached estimated speeds of 70 kts (80 mph), resulting in toppled trees and power lines. The fringe effects of this powerful macro-burst resulted in some tree damage north to the Cross Plains to Middleton area. The thunderstorm cluster also produced hail up to 2 inches in diameter in the Pine Bluff area, resulting in major damage to at least 100 vehicles, and to roofs and siding of homes. A one-mile swath of corn was leveled on the north side of Pine Bluff. Up to 4.50 inches of rain fell in the Pine Bluff area in a short period of time, resulting in flash flooding that washed out gravel shoulders of several roads in the Pine Bluff to Middleton area. At least a dozen homes sustained water damage to basement contents due to accumulating water up to 5 feet in depth. Powerful thunderstorm winds also damaged trees and power lines in the Waunakee area north of Madison. The concentration of damage in the Pine Bluff was the result of a series of thunderstorm cells developing in a stationary initiation location in western Dane County. As each cell developed and moved east-northeast, a new cell would replace it on the backside, a process referred to as "back-building." Thunderstorm development was focused by strong warm-air advection between the surface and 10,000 feet above ground coupled with strong surface moisture convergence from eastern Iowa into south-central Wisconsin. Surface dewpoints were in the 60s.



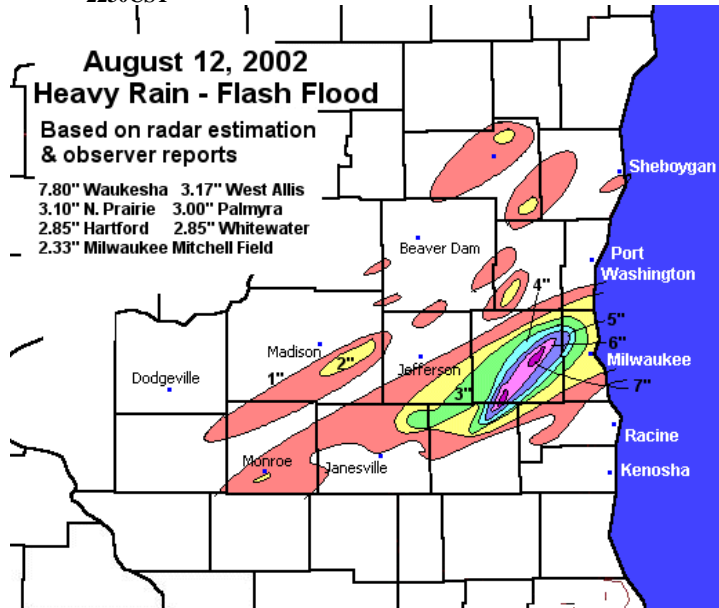
National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | Estimated Damage Property Crops | Character of Storm |
|-----------------------------|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|--------------------|
| WISCONSIN, Southeast | | | | | | | |
| Ozaukee County | | | | | | | |
| 2.8 E Grafton | 12 | 1400CST | | | 0 0 | 15K | Lightning |
| Waukesha County | | | | | | | |
| Elm Grove | 12 | 1830CST | | | 0 0 | 250K | Lightning |
| Rock County | | | | | | | |
| Janesville | 12 | 1845CST | | | 0 0 | 20K | Lightning |
| Waukesha County | | | | | | | |
| Waukesha | 12 | 1900CST 2200CST | | | 0 0 | 20K | Flash Flood |
| Milwaukee County | | | | | | | |
| Wauwatosa | 12 | 1930CST 2200CST | | | 0 0 | 10K | Flash Flood |
| Walworth County | | | | | | | |
| 3.5 NNW East Troy | 12 | 2015CST 2230CST | | | 0 0 | 5K | Flash Flood |



A series of thunderstorms with heavy rains repeatedly trained through a corridor from northwest of East Troy (Walworth Co.) to Waukesha (Waukesha Co.) to the Wauwatosa area (Milwaukee Co.), resulting in flash flooding damage. Area rivers and streams quickly rose about 1 foot above bankfull and many low-lying roads had fast-moving currents of water up to 4 feet deep flowing across them. Mud-slides and gravel shoulder washouts were noted, as well as several stalled vehicles. An Amateur Radio operator in the Waukesha city area measured a total of 7.8 inches of rain in about 4 hours. Other hams and volunteer spotters reported 5 to 7 inches back southwest into Walworth County. In Wauwatosa, a golf course along the Menomonee flooded over when that river exceeded its bank. Spotters noted that visibilities were reduced to below 1/4 mile in the heavy downpours. The combination of numerous lightning strikes and gusty winds of 35 to 39 kts (40 to 45 mph) across southeast Wisconsin left about 30,000 customers without electrical power; in some cases until the afternoon of the next day. The gusty winds broke small tree branches which then struck power lines. An Elm Grove (Waukesha Co.) home was struck by lightning which started a fire that gutted the 2nd floor. A lightning strike on the south side of Janesville knocked a substation out for almost 2 hours. Lightning struck a home east of Grafton (Ozaukee Co.) near Lake Michigan. An attic fire resulted in a small fire, and the home's electrical circuits were damaged. Outside the flash flood areas, rainfall amounts were generally in the 1 to 3 inch range, which signaled the end of the light to moderate drought that affected south-central and southeast Wisconsin since the end of June, 2002. Milwaukee Mitchell Field received 2.32 inches of rain for August 12th, a new daily record, breaking the old record of 1.30 inches set back in 1879.



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|--------------------|
| | | | | | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

Milwaukee County

| | | | | | | | | | |
|------------|----|--------------------|--|--|---|---|--|--|----------------------|
| Countywide | 13 | 1330CST 2200CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
|------------|----|--------------------|--|--|---|---|--|--|----------------------|

Waukesha County

| | | | | | | | | | |
|----------|----|--------------------|--|--|---|---|--|--|----------------------|
| Waukesha | 13 | 1330CST 2200CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
|----------|----|--------------------|--|--|---|---|--|--|----------------------|

Ozaukee County

| | | | | | | | | | |
|-----------------|----|--------------------|--|--|---|---|--|--|----------------------|
| Port Washington | 13 | 1400CST 1600CST | | | 0 | 1 | | | Urban/Sml Stream Fld |
|-----------------|----|--------------------|--|--|---|---|--|--|----------------------|

Jefferson County

| | | | | | | | | | |
|--|----|--------------------|-----|----|---|---|----|--|--------------|
| 1.8 SW Ft Atkinson to .5 N Cold Spg | 13 | 1602CST 1616CST | 4.5 | 50 | 0 | 0 | 5K | | Tornado (F0) |
|--|----|--------------------|-----|----|---|---|----|--|--------------|

A weak tornado spun up 1.8 miles southwest of Ft. Atkinson near the Rock River, and proceeded to move east-southeast across the far southern parts of the city to just north of the intersection of Hwy 89 and M, and then across rural, farm locations to a point just west of N about .5 mile north of Cold Spring. Maximum wind speeds were estimated to be in the 52 to 61 kts (60 to 70) mph range based on F0 damage left behind. Some light damage to shingles and siding was noted on several residential homes. Several large trees were uprooted, and loose lumber and debris was picked up at a lumber yard. At other locations along the path, lawn furniture and other objects were overturned or displaced. Eyewitness reports indicated that the condensation funnel was not visible all the way to the ground, but they noted that dirt was ingested into the circulation, thereby making the tornado visible at ground level. There were no fatalities or injuries. Meteorologically, the tornado was the result of two thunderstorm cells, in a line of storms along a cold front, merging just southwest of Ft. Atkinson. No other severe weather was reported.

Several clusters of thunderstorms with heavy rains developed over and moved northeast across southeast Wisconsin out ahead of a cold front on August 13, 2002, resulting in urban and small stream flooding in Waukesha, Milwaukee, and Ozaukee counties. Rainfall totals were in the 2 to 4 range. In addition, gust winds of 35 to 43 kts (40 to 50 mph) accompanied the storms, resulting in broken tree branches. On the south side of the city of Waukesha, 1.5 inches of rain fell in 20 minutes in the afternoon, once again sending small streams out of their banks and allowing water to accumulate in low-lying areas. The 2-day rain total at this location near the corner of Hwy 164 and CTY I was 8.80 inches! Also on the 13th in the afternoon, 3.4 inches of rain fell at the home of an Amateur Radio operator in the southeast part of the city of Milwaukee. Urban flooding resulted. Some closed roads in both Waukesha and Milwaukee Counties had 3 feet of water on them. Urban flooding affected the Port Washington area (Ozaukee Co.) after about 2 inches of rain fell in about 75 minutes during the afternoon hours. A couple roads were closed in that city. Urban flooding was also reported in Ft. Atkinson (Jefferson Co.) after the tornado event. Heavy rains in this city produced swift currents that knocked a boy down, sending him through a culvert. He was rescued by the Fire Department, and treated for slight injuries.

Sauk County

| | | | | | | | | | |
|----------|----|---------|--|--|---|---|--|--|-------------------------|
| La Valle | 17 | 0517CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
|----------|----|---------|--|--|---|---|--|--|-------------------------|

Dane County

| | | | | | | | | | |
|---------|----|---------|--|--|---|---|-----|--|-------------------------|
| Madison | 17 | 0605CST | | | 0 | 0 | 30K | | Thunderstorm Wind (E56) |
|---------|----|---------|--|--|---|---|-----|--|-------------------------|

Columbia County

| | | | | | | | | | |
|-----------|----|---------|--|--|---|---|--|--|-------------------------|
| Arlington | 17 | 0606CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
|-----------|----|---------|--|--|---|---|--|--|-------------------------|

Scattered severe thunderstorms popped up over parts of south-central Wisconsin during the early morning hours. Powerful downburst winds estimated in the 52 to 56 kts (60 to 65 mph) range toppled large trees. Tree debris hit several power lines in the Madison area, resulting in some power outages.



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| August 2002 | | | | | | | | | |
|--|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|-------------------------|
| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
| | | | | | Killed | Injured | Property | Crops | |
| <u>WISCONSIN, Southeast</u> | | | | | | | | | |
| Iowa County | | | | | | | | | |
| Rewey | 21 | 1628CST | | | 0 | 0 | 25K | | Thunderstorm Wind (E65) |
| Fond Du Lac County | | | | | | | | | |
| Ripon | 21 | 1630CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Sauk County | | | | | | | | | |
| 1 SW Limeridge | 21 | 1635CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Iowa County | | | | | | | | | |
| Mineral Pt | 21 | 1645CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Lafayette County | | | | | | | | | |
| Leadmine | 21 | 1645CST 1650CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Sauk County | | | | | | | | | |
| 5 NW West Baraboo to Baraboo | 21 | 1645CST 1655CST | | | 0 | 0 | 5K | | Thunderstorm Wind (E61) |
| Dane County | | | | | | | | | |
| 5 NNW Cross Plains | 21 | 1700CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Lafayette County | | | | | | | | | |
| 5 SSE Gratiot | 21 | 1700CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Lafayette County | | | | | | | | | |
| 2 SW Lamont to 1 ENE Lamont | 21 | 1705CST 1708CST | | | 0 | 0 | 110K | | Thunderstorm Wind (E70) |
| Marquette County | | | | | | | | | |
| Briggsville to Montello | 21 | 1705CST 1710CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Columbia County | | | | | | | | | |
| 1 SE Lewiston | 21 | 1710CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Dane County | | | | | | | | | |
| Belleville | 21 | 1730CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Fond Du Lac County | | | | | | | | | |
| Fond Du Lac | 21 | 1730CST 2000CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Fond Du Lac County | | | | | | | | | |
| .6 S Lamartine to 3.7 NNW Oakfield | 21 | 1741CST | 0.6 | 30 | 0 | 0 | | | Tornado (F0) |
| A weak tornado spun up in the rural area north-northwest of Oakfield, just east-southeast of the intersection of Hwy 151 and TC. It moved east-southeast and crossed Hwy Y before dissipating. A few trees were uprooted and some grasses were flattened. Wind speeds, based on damage to vegetation, was estimated about 52 to 61 kts (60 to 70 mph). Amateur Radio operators who observed this weak tornado noted that one had to be within 100 yards of the vortex in order to see it due to rain-wrapping and haze | | | | | | | | | |
| Dane County | | | | | | | | | |
| Belleville | 21 | 1745CST 1900CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Jefferson County | | | | | | | | | |
| Watertown | 21 | 1800CST 1900CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Green County | | | | | | | | | |
| 3.4 NW Monroe to Albany | 21 | 1805CST 1810CST | | | 0 | 0 | 25K | | Thunderstorm Wind (E61) |
| Rock County | | | | | | | | | |
| 5 SW Edgerton to 5 SE Edgerton | 21 | 1805CST 1810CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| August 2002 | | | | | | | | | |
|---|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|-------------------------|
| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
| | | | | | Killed | Injured | Property | Crops | |
| <u>WISCONSIN, Southeast</u> | | | | | | | | | |
| | | | | | | | | | |
| Fond Du Lac County | | | | | | | | | |
| 3 SE Oakfield | 21 | 1808CST 1810CST | | | 0 | 0 | 100K | 1K | Thunderstorm Wind (E70) |
| Jefferson County | | | | | | | | | |
| 4 W Ft Atkinson | 21 | 1814CST | | | 0 | 0 | | | Funnel Cloud |
| Dane County | | | | | | | | | |
| 3 SW Albion to Albion | 21 | 1815CST 1825CST | | | 0 | 0 | | | Thunderstorm Wind (E61) |
| Rock County | | | | | | | | | |
| Clinton | 21 | 1820CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Rock County | | | | | | | | | |
| Janesville | 21 | 1820CST | | | 0 | 0 | 2.5K | | Lightning |
| Jefferson County | | | | | | | | | |
| 3.5 ESE Rome | 21 | 1825CST 1827CST | | | 0 | 0 | | 2K | Thunderstorm Wind (E56) |
| Rock County | | | | | | | | | |
| Edgerton | 21 | 1825CST 2000CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Rock County | | | | | | | | | |
| 2 S Newark | 21 | 1830CST 2000CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Sheboygan County | | | | | | | | | |
| Plymouth | 21 | 1830CST | | | 0 | 0 | 5K | | Lightning |
| Jefferson County | | | | | | | | | |
| Busseyville | 21 | 1840CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Walworth County | | | | | | | | | |
| Richmond | 21 | 1840CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Waukesha County | | | | | | | | | |
| Waukesha | 21 | 1845CST 2000CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Waukesha County | | | | | | | | | |
| 1 NE Waukesha Co Arpt 2.7 E Capitol Drive Arpt | 21 | 1845CST 1855CST | | | 0 | 0 | 2M | | Thunderstorm Wind (E87) |
| Dodge County | | | | | | | | | |
| 1 E Neosho | 21 | 1850CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Walworth County | | | | | | | | | |
| 1.5 S Elkhorn | 21 | 1851CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Ozaukee County | | | | | | | | | |
| Port Washington | 21 | 1900CST 2100CST | | | 0 | 0 | | | Urban/Sml Stream Fld |
| Ozaukee County | | | | | | | | | |
| Fredonia | 21 | 1902CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Dane County | | | | | | | | | |
| Marshall | 21 | 1905CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Racine County | | | | | | | | | |
| Waterford to Tichigan | 21 | 1905CST 1910CST | | | 0 | 0 | | | Thunderstorm Wind (E61) |
| Washington County | | | | | | | | | |
| Germantown | 21 | 1907CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Waukesha County | | | | | | | | | |
| 3 S Waukesha | 21 | 1910CST | | | 0 | 0 | | | Thunderstorm Wind (M56) |



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed Injured | Estimated Damage Property Crops | Character of Storm |
|------------------------------------|------|----------------------------|---------------------------|--------------------------|--|---------------------------------------|-------------------------|
| <u>WISCONSIN, Southeast</u> | | | | | | | |
| Milwaukee County | | | | | | | |
| West Allis to Milwaukee | 21 | 1912CST 1925CST | | | 0 0 | 50K | Thunderstorm Wind (E56) |
| Kenosha County | | | | | | | |
| Twin Lakes to Silver Lake | 21 | 1915CST 1925CST | | | 0 0 | | Thunderstorm Wind (E56) |
| Milwaukee County | | | | | | | |
| Timmerman Arpt | 21 | 1915CST | | | 0 0 | 5.1M | Thunderstorm Wind (E70) |
| Washington County | | | | | | | |
| 4 E West Bend | 21 | 1915CST | | | 0 0 | | Thunderstorm Wind (E52) |
| Racine County | | | | | | | |
| Sturtevant to Wind Pt | 21 | 1920CST 1935CST | | | 0 0 | 1M | Thunderstorm Wind (E74) |
| Milwaukee County | | | | | | | |
| Cudahy to South Milwaukee | 21 | 1930CST 1935CST | | | 0 0 | 100K | Thunderstorm Wind (E65) |
| Racine County | | | | | | | |
| 1.2 E Horlick Racine Arp | 21 | 1930CST | | | 0 0 | 10K | Lightning |
| Racine County | | | | | | | |
| Racine | 21 | 1930CST | | | 0 0 | 5K | Lightning |
| Sheboygan County | | | | | | | |
| Cedar Grove to Oostburg | 21 | 1930CST 2130CST | | | 0 0 | | Urban/Sml Stream Fld |
| Green County | | | | | | | |
| Juda to Brodhead | 21 | 2043CST 2050CST | | | 0 0 | | Thunderstorm Wind (E56) |
| Milwaukee County | | | | | | | |
| Fox Pt | 21 | 2100CST | | | 0 0 | 500K | Lightning |
| Milwaukee County | | | | | | | |
| White Fish Bay | 21 | 2100CST | | | 0 0 | 1K | Lightning |
| Waukesha County | | | | | | | |
| 3 SE Delafield | 21 | 2130CST | | | 0 0 | 3K | Lightning |
| Waukesha County | | | | | | | |
| 1.5 S Hartland | 21 | 2135CST | | | 0 0 | 5K | Lightning |
| Lafayette County | | | | | | | |
| Benton to 5 SSE Gratiot | 22 | 0320CST 0600CST | | | 0 0 | | Urban/Sml Stream Fld |

The severer weather and flooding that affected much of south-central and southeast Wisconsin on August 21, 2002, into the pre-dawn hours of the 22nd, was probably the most widespread and significant outbreak for the 2002 warm-season. Just about every type of weather phenomena was observed: a tornado; a funnel cloud; powerful, hurricane-force, downburst winds that uprooted trees and damaged buildings; torrential rains reducing visibilities to 100 feet; urban and small stream flooding; numerous lightning strikes - some that resulted in fire damage; and the early stages of a ground-based vortex that never made it to tornado status. Clusters and short lines of thunderstorms ahead of a cold front eventually merged into a single complex that moved west to east across southern Wisconsin. Surface dewpoints were in the lower 70s and maximum afternoon temperatures were in the mid to upper 80s. At least 56,000 customers in southeast Wisconsin lost electrical power thanks to lightning strikes, and tree damage to power lines. One of the worst lightning strikes was in Fox Point (Milwaukee Co.), where a lightning fire burned a home to the ground. In the city of Racine (Racine Co.), lightning blew a home's windows out.

Near Rewey (Iowa Co.), the thunderstorm winds blew the roof of a building, and flattened a farm shed. Just southwest of Lamont (Lafayette Co.), the winds blew an attached garage off a home, demolished an old barn whose pieces were pushed onto a road, and leveled several large trees. North of Baraboo (Sauk Co.), the winds pushed a tree on to a home, and damaged siding and cables on another home. A weak F0 tornado spun up in the rural area north-northwest of Oakfield (Fond du Lac Co.), but damage was limited to vegetation. The discussion on this tornado can be found as a separate August 21, 2002 episode in this publication. About 3 miles southeast of Oakfield, a gustnado (Thunderstorm Wind event) with estimated wind speeds of 61 to 70 kts (70 to 80 mph) tore off a pole shed's roof, demolished yard furniture, and severely damaged another building. Some corn crop was also damaged. Based on



National Weather Service

Storm Data and Unusual Weather Phenomena



August 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

WSWR-88D imagery, it appears that the convergence of two gust fronts initiated the gustnado. North-northeast of Monroe (Green Co.) a shed was blown onto a road and further northeast near Albany a farm wagon was blown on to a road. Partial roof damage occurred southwest of Albion (Dane Co.) as the storms moved through. A trained spotter on the west shore of Rock Lake in the city of Lake Mills (Jefferson Co.) observed a circulation whip up 3-foot tall waves with white caps on the lake while also observing a wall cloud above. This vortex never spun up to cloud base, which would have classified it a tornado. No damage was noted. A weak gustnado on a gust front, with estimated winds of 52 to 61 kts (60 to 70 mph) damaged some corn and trees just 1/4 mile to the west of the Milwaukee/Sullivan NWS office east of Rome. An incredibly powerful macroburst tore through the area from just northeast of the Waukesha County airport northeastward through Pewaukee to that part of Brookfield east of Capital Drive Airport. Estimated wind speeds reach 100 mph based on a measured gust of 98 mph at a home south of Green Rd. near Duplainville, in the Town of Brookfield. At the intersection of I-94 and Hwy T, the steel support posts for road signs were twisted by the winds. At least 8 homes southeast of Duplainville had damage ranging from blown-out windows and damaged chimneys to roof damage, toppled street lights, and a demolished garage. One house was slightly shifted off its foundation; obviously it wasn't well-anchored to its foundation. In the city of Brookfield there were two localized areas where large trees were uprooted: in the Camelot Park area and in the Beverly Hills Park area. A large tree fell onto a home's screened porch, resulting in severe damage. A couple other homes had some minor gutter, siding, and window damage as large tree branches scraped the sides while falling. The powerful winds also hit Milwaukee County hard. An estimated wind gust of at least 70 kts (80 mph) ripped a 100-foot long blimp from its mooring at Timmerman Field, allowing the blimp to fly about 6 blocks and damage 4 homes on impact. The winds blew water through the flaps that cover the edges of the retractable roof panels of Miller Park in Milwaukee, resulting in a saturated playing field, and some wet spectators. In Cudahy an eight-car garage's roof was removed by the winds, and 3 stalls collapsed, based on Amateur Radio reports. A picnic shelter and several other garages and businesses on College Ave. near Lake Michigan also sustained some damage. In the city of South Milwaukee, a business's sign and fence were destroyed by the winds. Another powerful hurricane-force microburst moved northeast through Sturtevant (Racine Co.) through the north side of the city of Racine to Wind Point. The roof of an apartment building in Racine was partially ripped off by the winds. In addition, large trees were uprooted and several other homes suffered slight damage from felled trees and tree branches. Farther west in the Waterford area, a 2-story tall grain bin was lifted off the ground and moved 15 feet by the winds, while nearby large trees were damaged.

Torrential rainfalls up to the rate of 1 inch in 15 to 20 minutes were common with many of the storms, resulting in scattered areas of urban and small stream flooding. The rainfall rate at one location in the city of Milwaukee peaked at over 6 inches per hour! Combined late-afternoon and evening rainfall totals reached 1 to 3 inches across much of south-central and southeast Wisconsin. The southern part of Lafayette County near the Illinois border received up to 5 to 6 inches of rain (based on WSR-88D Doppler radar rainfall estimates) due to repeated rounds of thunderstorms moving west to east across that area. In Gratiot, 4.10 inches were measured, but this location was north of the area that had greater amounts. Just across the border in the northwestern Illinois counties of Jo Daviess and Stephenson spotters measured over 10 inches of rain! Luckily for Lafayette County, which has hilly terrain, the rains came in several rounds and resulted in only urban/small stream flooding, rather than flash flooding.

LAKE MICHIGAN

| | | | | | | | | | |
|------------------|--|----------------|--|--|----------|----------|--|--|-------------------------------|
| LMZ644 | Pt Washington To North Pt Lt Wi | | | | | | | | |
| Grafton | 02 | 2115CST | | | 0 | 0 | | | Marine Tstm Wind (E52) |
| LMZ643 | Sheboygan To Pt Washington Wi | | | | | | | | |
| Sheboygan | 02 | 2120CST | | | 0 | 0 | | | Marine Tstm Wind (E52) |

Clusters and short lines of severe thunderstorms moved out over Lake Michigan

WISCONSIN, Southeast

| | | | | | | | | | |
|---------------------------|-----------|----------------|------------|-----------|----------|----------|--|--|--------------------------------|
| Marquette County | | | | | | | | | |
| Montello | 02 | 2000CST | | | 0 | 0 | | | Thunderstorm Wind (E56) |
| Fond Du Lac County | | | | | | | | | |
| North Fond Du Lac | 02 | 2005CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Fond Du Lac County | | | | | | | | | |
| Ripon | 02 | 2005CST | | | 0 | 0 | | | Thunderstorm Wind (E52) |
| Fond Du Lac County | | | | | | | | | |
| 1 NNW Brandon | 02 | 2006CST | 0.1 | 30 | 0 | 0 | | | Tornado (F0) |

A brief tornado spun up just north-northwest of the village of Brandon, as a cluster of severe storms moved east across Fond du Lac County. Law enforcement officials observed some tree damage.



National Weather Service

Storm Data and Unusual Weather Phenomena



September 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|----------------------|---------|---------------------|-------|--------------------|
| | | | | | Killed | Injured | Property | Crops | |

WISCONSIN, Southeast

Fond Du Lac County

| | | | | | | | | |
|----------|----|--------------------|-----|----|---|---|------|--------------|
| 1 N Eden | 02 | 2030CST 2031CST | 0.3 | 75 | 0 | 0 | 750K | Tornado (F1) |
|----------|----|--------------------|-----|----|---|---|------|--------------|

A tornado, rated as F1 with winds of about 78 to 87 knots (90 to 100 mph) damaged three, large, cover-all, dairy barns. Severe damage was noted on the western-most barn. In addition, some trees were uprooted or had limbs ripped off. The three barns were part of Fond du Lac's largest dairy farm. Luckily, only one of the 1400 dairy cows was injured.

Washington County

| | | | | | | | | |
|-----------|----|---------|--|--|---|---|----|-------------------------|
| West Bend | 02 | 2105CST | | | 0 | 0 | 2K | Thunderstorm Wind (E56) |
|-----------|----|---------|--|--|---|---|----|-------------------------|

Ozaukee County

| | | | | | | | | |
|---------|----|---------|--|--|---|---|--|-------------------------|
| Grafton | 02 | 2115CST | | | 0 | 0 | | Thunderstorm Wind (E52) |
|---------|----|---------|--|--|---|---|--|-------------------------|

Sheboygan County

| | | | | | | | | |
|-----------|----|---------|--|--|---|---|--|-------------------------|
| Sheboygan | 02 | 2120CST | | | 0 | 0 | | Thunderstorm Wind (E52) |
|-----------|----|---------|--|--|---|---|--|-------------------------|

Waukesha County

| | | | | | | | | |
|-------------------------|----|--------------------|--|--|---|---|--|-------------------------|
| North Lake to Sussex | 02 | 2140CST 2150CST | | | 0 | 0 | | Thunderstorm Wind (M58) |
|-------------------------|----|--------------------|--|--|---|---|--|-------------------------|

Clusters or short lines of severe storms with powerful downburst winds and isolated tornadoes moved through parts of south-central and southeast Wisconsin on Labor Day September 2, 2002. Two tornadoes spun up in Fond du Lac County. Refer to those individual tornado events for details. Numerous large trees were toppled in some locations by the downburst winds, while broken tree branches snapped some power lines. Amateur radio operators in Waukesha County measured peak wind gust of 58 knots (67 mph). In West Bend (Washington Co.), a house trailer was blown over, and slightly damaged, by the powerful winds.

WIZ058>059-064>065-
069>070

Dodge - Washington - Jefferson - Waukesha - Rock - Walworth

| | | | | | | | |
|----|--------------------|--|---|---|--|--|-----|
| 06 | 0400CST 0900CST | | 0 | 0 | | | Fog |
|----|--------------------|--|---|---|--|--|-----|

Dense fog developed overnight across parts of south-central and southeast Wisconsin. Visibilities were reduced to zero to 1/4 mile, resulting in a few vehicle accidents, and delayed airplane activities.

Jefferson County

| | | | | | | | | |
|-----------------|----|---------|--|--|---|---|--|------------|
| 2.7 SW Cold Spg | 09 | 1440CST | | | 0 | 0 | | Hail(0.75) |
|-----------------|----|---------|--|--|---|---|--|------------|

Walworth County

| | | | | | | | | |
|-------------------|----|---------|--|--|---|---|--|------------|
| 2.5 SW Whitewater | 09 | 1500CST | | | 0 | 0 | | Hail(0.75) |
|-------------------|----|---------|--|--|---|---|--|------------|

An isolated, small cluster of slow-moving severe thunderstorms dumped some large hail.

Racine County

| | | | | | | | | |
|------------|----|---------|--|--|---|---|----|-----------|
| Burlington | 19 | 1250CST | | | 0 | 0 | 2K | Lightning |
|------------|----|---------|--|--|---|---|----|-----------|

Racine County

| | | | | | | | | |
|-----------------------------------|----|--------------------|--|--|---|---|--|-------------------------|
| Burlington to 3.8 SE Waterford | 19 | 1255CST 1310CST | | | 0 | 0 | | Thunderstorm Wind (E56) |
|-----------------------------------|----|--------------------|--|--|---|---|--|-------------------------|

Walworth County

| | | | | | | | | |
|----------|----|--------------------|--|--|---|---|--|----------------------|
| Walworth | 19 | 1400CST 1600CST | | | 0 | 0 | | Urban/Sml Stream Fld |
|----------|----|--------------------|--|--|---|---|--|----------------------|

Kenosha County

| | | | | | | | | |
|---------|----|--------------------|--|--|---|---|--|----------------------|
| Kenosha | 19 | 1445CST 1630CST | | | 0 | 0 | | Urban/Sml Stream Fld |
|---------|----|--------------------|--|--|---|---|--|----------------------|

Washington County

| | | | | | | | | |
|-----------|----|---------|--|--|---|---|-----|-----------|
| West Bend | 19 | 1630CST | | | 0 | 0 | 10K | Lightning |
|-----------|----|---------|--|--|---|---|-----|-----------|

Fast-moving, severe thunderstorms swept through southeast Wisconsin, resulting in powerful downburst winds that leveled trees in western Racine County. In addition, cloudbursts dumped 1.02 inches of rain in the city of Kenosha (Kenosha Co.), and 1.80 inches of rain in Lake Geneva within 30 to 60 minutes, triggering some urban flooding in both locations. Lightning struck a couple power stations (location unknown), resulting in the loss of electricity for 5370 residents in Racine and Kenosha counties. Lightning struck



| September 2002 | | | | | | | | | |
|----------------|------|---------------------|---------------------|--------------------|-------------------|---------|------------------|-------|--------------------|
| Location | Date | Time Local/Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons | | Estimated Damage | | Character of Storm |
| | | | | | Killed | Injured | Property | Crops | |

Kenosha County
Trevor

Lightning struck a cork-producing business and probably produced sparks that ignited insulation in the attic. A slow-burning fire resulted, and eventually is became a major fire later in the day. This western Kenosha County business sustained significant structural and contents damage. The time of the lightning strike is an estimation by fire department officials, since several rounds of thunderstorms moved through the western Kenosha County area during the early morning hours.



National Weather Service

Storm Data and Unusual Weather Phenomena



October 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

LAKE MICHIGAN

LMZ645 **North Pt Lt To Wind Pt Wi**
4 SE Milwaukee Harbor **04** **0954CST** **0** **0** **Marine Tstm Wind (M38)**
Milwaukee Harbor

LMZ646 **Wind Pt Lt Wi To Winthrop Hbr II**
2 S Wind Point **04** **0957CST** **0** **0** **Marine Tstm Wind (M36)**

LMZ644 **Pt Washington To North Pt Lt Wi**
1.8 N North Point Lthous **04** **1000CST** **0** **0** **Marine Tstm Wind (M37)**
North Point Lthouse

LMZ643 **Sheboygan To Pt Washington Wi**
Sheboygan **04** **1000CST** **0** **0** **Marine Tstm Wind (M46)**

A line of intense showers moved east through southeast Wisconsin and out over Lake Michigan, producing strong wind gusts from the southwest to west. This line of showers moved through an atmosphere that already had winds of 35 to 61 kts (40 to 70 mph) between 2 and 10 thousand feet above the ground. Mixing of air inside and near the downdraft/rain showers allowed for the transfer of these stronger winds down to the surface.

WISCONSIN, Southeast

Walworth County
Darien to **04** **0855CST** **0** **0** **25K** **Thunderstorm Wind (E58)**
Fontana

Waukesha County
2.2 SE Eagle **04** **0900CST** **0** **0** **50K** **Thunderstorm Wind (E61)**

Waukesha County
Oconomowoc to **04** **0903CST** **0** **0** **300K** **Thunderstorm Wind (M64)**
1 S Hartland **0920CST**

Racine County
Burlington to **04** **0925CST** **0** **0** **Thunderstorm Wind (E54)**
Racine **0940CST**

Washington County
Germantown **04** **0925CST** **0** **0** **Thunderstorm Wind (M54)**

Sheboygan County
Sheboygan **04** **0940CST** **0** **0** **2K** **Thunderstorm Wind (M58)**

During the mid-morning hours of October 4, 2002, a line of convective showers, orientated north to south moved east through south-central and southeast Wisconsin, and produced strong, gusty west winds generally in the 35 to 48 kt (40 to 55 mph) range with scattered reports of 52 to 61 kts (60 to 70 mph), an isolated "gustnado", and heavy rains. There were several reports of uprooted trees, etc. Interestingly, no thunder or lightning was reported by spotters or the general public, nor did any cloud-to-ground lightning strikes register on the national lightning detection network. However, off-duty National Weather Service (NWS) employees in Oconomowoc (Waukesha Co.) observed some cloud-to-cloud lightning. The line of convective showers was moving through an atmosphere that already had winds of 35 to 61 kts (40 to 70 mph) between 2 and 10 thousand feet above the ground. Mixing of air inside and near the downdraft/rain showers allowed for the transfer of these stronger winds down to the surface.

As the line of showers moved through the remainder of southeast Wisconsin, it briefly intensified in scattered locations such that winds gusts over 48 kts (55 mph) were noted. A wind gust of 56 kts (65 mph) occurred at an Oconomowoc about 0900CST, a wind gust of 54 kts (62 mph) was measured in Germantown (Washington Co.) by a storm spotter about 0925CST, a 74 mph gust from the west-southwest was measured at the home of an Amateur Radio operator about 1 mile south of Hartland (Waukesha Co.) at about 0920CST, and a 58 kt (67 mph) gust was reported from a Sheboygan (Sheboygan Co.) school/TV network site. The 74 mph wind gust was associated with a "gustnado" that tore the roof off a home just two doors away on Manchester Lane. Across the street an apartment building sustained roof damage, and two support columns for the front door overhang were toppled. A sliding glass door on the 2nd floor of the apartment building was sucked out of the wall. In addition, a large 60-foot tree on an adjacent street was pushed over onto the roof of a home, resulting in damage. Several other large trees were uprooted, and roof shingles were lifted off on a couple homes. Another apartment building sustained damage to a wooden deck. Just west of Hartland, the high winds knocked over a flat-bed farm trailer. On the west side of Eagle Springs Lake (Waukesha Co.) the powerful winds uprooted large trees, which damaged the roof of one residence, damaged a boat house, and two boats on trailers. In addition, the winds destroyed another boat house.



National Weather Service

Storm Data and Unusual Weather Phenomena



October 2002

| Location | Date | Time Local/ Standard | Path Length (Miles) | Path Width (Yards) | Number of Persons Killed | Number of Persons Injured | Estimated Damage Property | Estimated Damage Crops | Character of Storm |
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|
|----------|------|----------------------------|---------------------------|--------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------|--------------------|

WISCONSIN, Southeast

Elsewhere in southeast Wisconsin, the Oconomowoc area had uprooted trees and toppled power lines, with one home sustaining damage due to a toppled tree. In Racine County the powerful winds uprooted trees and knocked tree branches loose which hit some power lines. Small tree branches were also knocked loose in all of the other southeastern Wisconsin counties. At least 8000 customers in southeast Wisconsin lost electrical power. Total rainfall associated with the showers ranged from 0.50 to 1.00 inches. Monetary damage amounts listed above are rough estimates.

WIZ052-060

Sheboygan - Ozaukee

| | | | | |
|----|---------|----|---|-----|
| 11 | 0200CST | 11 | 0 | Fog |
| | 0830CST | | | |

Shallow dense fog developed over parts of Sheboygan and Ozaukee counties during the overnight hours, and persisted to about 0830CST. The dense fog, reducing visibilities to zero to 1/4 mile, was a factor in three closely-spaced, but separate multi-vehicle accidents in Sheboygan County (total of 50 vehicles), and one two-vehicle accident in northern Ozaukee County. In Sheboygan County, the three multi-vehicle accidents occurred around 0615 to 0620CST, on a stretch of Interstate-43 southeast of Cedar Grove. The southern-most of the three, involving 34 vehicles, resulted in 10 fatalities and 40 injuries. The interstate southeast of Cedar Grove is situated very close to Lake Michigan, where weak onshore flow of only 1-3 mph concentrated evaporated moisture off the relatively warm Lake Michigan waters. In that vicinity, the fog was especially dense, and newspaper articles reported that some drivers described the exceptionally dense fog as a whiteout, unavoidable, and unanticipated. Some drivers involved in the accident said they could look up and see blue sky, but couldn't see 5 feet in front of them. Additionally, law enforcement officials indicated that some of the drivers involved in the killer pile-up were probably driving too fast for the weather conditions. It is possible that sunlight at a low angle penetrating the shallow dense fog made visibilities worse due to scattering of light. Another two-vehicle accident occurred on the northwest corner of Belgium in northern Ozaukee county, resulting in 1 death and 1 injury. M52VE, M26VE, M38VE, M45VE, M36VE, M42VE, M25VE, M63VE, F24VE, F49VE, F14VE